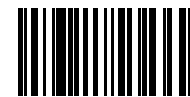


# SPORTSTER® RH MODELS

2024 HARLEY-DAVIDSON® OWNER'S MANUAL



Harley-Davidson Motor Company  
Service Communications  
Milwaukee WI 53208 USA



94001158

English

2024 HARLEY-DAVIDSON® OWNER'S MANUAL  
SPORTSTER® RH MODELS - 94001158

Printed in the USA



94001158

Download this and other documents free of charge at <https://serviceinfo.harley-davidson.com>.



# SPORTSTER® RH MODELS

2024 HARLEY-DAVIDSON® OWNER'S MANUAL



**⚠ WARNING:** Operating, servicing and maintaining a passenger vehicle or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to [www.P65Warnings.ca.gov/passenger-vehicle](http://www.P65Warnings.ca.gov/passenger-vehicle)

**⚠ WARNING:** This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**⚠ WARNING:** Crude oil, gasoline, diesel fuel and petroleum products can expose you to chemicals, including toluene and benzene, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

94001158

2024 HARLEY-DAVIDSON® OWNER'S MANUAL - SPORTSTER® RH MODELS



# TABLE OF CONTENTS

## INTRODUCTION

Your Owner's Manual.....	1
We Care About You.....	1
United States Owners.....	1
Customer Service Assistance.....	1

## SAFETY FIRST

Safety Definitions.....	3
Safe Operating Rules.....	3
Harley-Davidson Motorcycles Are for On-Road Use Only.....	3
General.....	4
Operation.....	4
Steering and Handling.....	5
Accessories and Cargo.....	6
Tires.....	7
Towing and Trailering.....	7
Fuel and Exhaust.....	8
Brakes.....	9
Battery.....	10
Hazardous Materials.....	11
Maintenance.....	11
Parts and Accessories.....	11
Rules of the Road.....	12
Noise Control System.....	13

Tampering.....	13
Safety Symbol Definitions.....	13
Labels.....	17

## YOUR MOTORCYCLE

Vehicle Identification Number (VIN).....	21
General.....	21
Location.....	21
Abbreviated VIN.....	21
Models and Features.....	24
Primary Controls and Service Components.....	24

## SPECIFICATIONS

Specifications.....	31
Tires.....	31
Weights and Dimensions.....	32
Capacities.....	33
Engine and Transmission.....	34
Electrical.....	35

## BEFORE RIDING

Removing Motorcycle from Storage.....	37
Pre-Ride Checklist.....	37
Break-in Riding Rules.....	38
The First 500 Miles (800 Kilometers).....	38
Filling the Fuel Tank.....	39

# TABLE OF CONTENTS

FUEL FILLER CAP (Top Mounted Fuel Tank).....	39
FUEL FILLER CAP (Under Seat Fuel Tank).....	40
Fuel System Information.....	41
Gasoline.....	41
Catalytic Converter.....	44
ABS Brake System Identification.....	44
Identification.....	44
Checking Tire Pressure and Inspecting Tires.....	44
General Information.....	44
Tire Pressure.....	45
Inspecting Tires.....	47
Replacing Tires.....	49
Adjusting Mirrors.....	50
Operating Jiffy Stand.....	50
Location.....	50
Jiffy Stand Switch (If equipped).....	50
Suspension Adjustments.....	51
Suspension Definitions.....	51
Suspension Tuning.....	51
Changes in Load.....	52
Adjusting Rear Shock Absorbers.....	52
Dual Shocks.....	52
Mono Shock.....	58
Adjusting Front Shock Absorbers.....	61
Front Fork.....	61

## SECURITY SYSTEM

Security System.....	65
Components.....	65
Options.....	65
Security System Fob.....	65
Assigning Fob.....	65
Fob Battery.....	66
Riding with a Fob.....	67
Riding without a Fob.....	67
Personal Identification Number (PIN).....	68
Changing the PIN.....	68
Arming and Disarming.....	70
Arming.....	70
Disarming.....	71
Disarming with a PIN.....	71
Alarm.....	72
Warnings.....	72
Alarm Activation.....	73
Alarm Deactivation.....	73
Siren Chirp Mode (Confirmation).....	73
Transport Mode.....	73
To Enter Transport Mode.....	74
To Exit Transport Mode.....	74
Storage and Service Departments.....	74

# TABLE OF CONTENTS

Long-Term Parking.....	74	Service Lamps.....	85
Service Departments.....	74	Battery Fault Indicator.....	86
Disconnecting Power.....	74	Coolant Temperature Indicator.....	86
All Models.....	74	Oil Pressure Indicator.....	86
Troubleshooting.....	75	Low Fuel Indicator.....	87
Fob.....	75	Ride Mode Indicator.....	87
<b>OPERATION</b>		Vehicle Hold Control Indicator (models with).....	87
Keyless Ignition.....	77	Heated Hand Grip Indicator (If equipped).....	87
Ignition Mode.....	77	Gear Indicator.....	87
Accessory Mode.....	77	Turn Signal Indicators.....	87
Controls, Instruments and Switches.....	78	Headlamp High Beam Indicator.....	88
Clutch Hand Lever.....	78	Cruise Control Indicator (If equipped).....	88
Gear Shift Lever.....	78	ABS Indicator.....	88
Left-Hand Control Module.....	79	Tire Pressure/TPMS Fault Indicator (If equipped).....	89
Right-Hand Control Module.....	79	Traction Control Indicator.....	90
Instrument Module.....	79	Bluetooth Indicator (If equipped).....	90
Brakes.....	79	Bluetooth Application Status Indicator.....	90
Throttle Twist Grip.....	80	Device Battery Indicator (If equipped).....	90
OFF/RUN Switch.....	80	Device Signal Indicator (If equipped).....	90
Fork Lock.....	80	Headset Connection Indicator (If equipped).....	90
Instruments.....	81	Left Hand Control Switches.....	94
Updating Software.....	81	Models with Infotainment.....	94
Models with Infotainment.....	82	OK/enter.....	96
Models Without Infotainment.....	84	Models Without Infotainment.....	97
Indicators.....	85	Right Hand Control Switches.....	100
		Models with Infotainment.....	100

# TABLE OF CONTENTS

Models Without Infotainment.....	103	Enabling/Disabling EITMS.....	117
Infotainment (If Equipped).....	105	Stopping the Engine.....	118
SAFETY.....	105	Anti-Lock Brake System (ABS).....	118
CONTROLS.....	106	Front Brake Lever.....	118
BLUETOOTH.....	107	Rear Brake Pedal.....	118
PHONE.....	108	ABS Functions.....	119
VOICE RECOGNITION.....	109	How ABS Works.....	119
NAVIGATION.....	109	How To Use ABS.....	119
Bike Status.....	110	ABS: Tires and Wheels.....	120
Ride Modes.....	110	Cornering Rider Safety Enhancements.....	121
Ride Modes.....	110	Cornering Enhanced ABS (C-ABS) Functions.....	122
Setting Custom Ride Mode (If Equipped).....	111	Tire Pressure Monitoring System (TPMS) (If Equipped).....	122
Electronic Throttle Control (ETC).....	112	Cornering Enhanced Traction Control (C-TCS), and Front Lift Mitigation (FLM).....	122
ETC Limited Performance Mode.....	112	Cornering Enhanced Drag-Torque Slip Control System (C-DSCS).....	122
ETC Power Management Mode.....	112	Traction Control.....	123
ETC Forced Idle Mode.....	113	How Traction Control Works.....	123
ETC Forced Shut Down Mode.....	113	How To Use Traction Control.....	123
USB Port (If Equipped).....	113	Drag-Torque Slip Control System (DSCS).....	123
Heated Gear Connector.....	113	Shifting Gears.....	124
Starting the Engine.....	115	Stopped, Engine Off.....	124
General.....	115	Starting from a Stop.....	124
Starting.....	115	Upshift (Acceleration).....	125
Starting after Tipover.....	116		
Engine Idle Temperature Management System (EITMS).....	116		
Operation.....	116		



# TABLE OF CONTENTS

Downshift (Deceleration).....	126	Disposal and Recycling.....	140
<b>AFTER RIDING</b>		Engine Lubrication.....	141
Genuine Motor Parts and Accessories.....	129	Engine Lubrication.....	141
Online Catalog.....	129	Low Temperature Lubrication.....	142
Shop for Your Bike.....	129	Check Engine Oil Level.....	142
Cleaning and General Care.....	129	Change Oil and Oil Filter.....	144
Cleaning Wheels and Tires.....	130	OIL COOLER.....	146
Radiator.....	130	Inspecting Brake Pads and Discs.....	147
Recommended Cleaning Products.....	130	Brake Pads.....	147
Washing the Motorcycle.....	135	Brake Disc.....	148
Preparation.....	135	Checking Systems for Leaks or Abrasions.....	148
Cleaning Wheels and Tires.....	135	Checking Brake Fluid Level and Changing Brake Fluid.....	148
Washing the Motorcycle.....	135	Checking Brake Fluid Level.....	149
Drying the Motorcycle.....	136	Changing Brake Fluid.....	151
Polishing and Sealing.....	136	Checking Clutch and Brake Controls.....	152
Leather and Vinyl Care.....	137	Clutch Hand Lever.....	152
Exhaust Care.....	137	Brake Hand Lever.....	152
Storing Motorcycle.....	138	Miscellaneous Lubrication.....	152
<b>MAINTENANCE AND LUBRICATION</b>		Check Drive Belt Deflection.....	152
Maintenance.....	139	Models Equipped With Belt Deflection Window.....	153
Break-in Maintenance.....	139	All Other Models.....	153
Preparing the Motorcycle for Maintenance.....	139	Mechanical Clutch.....	156
Setting Motorcycle Upright.....	140	Coolant.....	157
Lifting Motorcycle.....	140	General.....	157
		Checking Coolant Level.....	157
		Checking Coolant Freeze Point.....	158

# TABLE OF CONTENTS

Cleaning Radiator.....	158
Replacing Coolant.....	159
Maintaining Front Fork.....	159
Adjusting Steering Head Bearings.....	160
Shock Absorbers.....	160
Spark Plugs.....	160
Inspecting Air Filter.....	160
Inspecting Air Filter (Under Seat Fuel Tank).....	161
Inspecting Air Filter (Top Mounted Fuel Tank).....	164
Lubricating Fuel Cap Lock.....	164

## SERVICE PROCEDURES

Battery Tender Connector.....	165
Battery Maintenance.....	166
Battery Safety.....	166
Absorbed Glass Mat (AGM) Battery Charging Information.....	167
Cleaning and Inspecting.....	167
Charging and Storing the Battery.....	168
Battery Replacement.....	169
Removing Battery.....	169
Installing Battery.....	170
Side Covers.....	173
Left Side Steering Head Cover.....	173
Left Side Cover (1250 Models Typical).....	174

Right Side Cover (RH975 Models Typical).....	175
Chin Spoiler.....	175
Chin Spoiler Left Extension.....	175
Chin Spoiler Right Extension.....	176
Chin Spoiler.....	177
Headlamp.....	178
Prepare.....	179
Check Alignment.....	179
Adjustment.....	181
Replacing Headlamp.....	183
Tail Lamp Bulb Replacement: LED.....	183
Turn Signal Bulb Replacement: LED.....	183
Seat.....	183
Removal (RH1250S).....	183
Installation (RH1250S).....	183
Open (RH975/S).....	184
Close (RH975/S).....	184
FUSES.....	184
Main Fuse.....	185
Fuse Block.....	186

## TROUBLESHOOTING

Troubleshooting: General.....	189
Engine.....	189

# TABLE OF CONTENTS

Starter Does Not Operate or Does Not Turn Engine Over.....	189
Engine Turns Over But Does Not Start.....	189
Starts Hard.....	189
Starts But Runs Irregularly or Misses.....	190
A Spark Plug Fouls Repeatedly.....	190
Pre-ignition or Detonation (Knocks or Pings).....	190
Overheats.....	190
Excessive Vibration.....	190
Engine Oil Not Circulating (Oil Pressure Indicator Lit).....	190
Transmission.....	191
Transmission Shifts Hard.....	191
Transmission Jumps Out of Gear.....	191
Clutch Slips.....	191
Clutch Drags or Does Not Release.....	191
Clutch Chatters.....	191
Cooling System.....	191
Overheats.....	191
Electrical System.....	191
Alternator Does Not Charge.....	191
Alternator Charge Rate is Below Normal.....	191
Brakes.....	192
Brakes Do Not Hold Normally.....	192

## WARRANTIES AND RESPONSIBILITIES

Maintenance Responsibilities.....	193
-----------------------------------	-----

Finding an Authorized Dealer.....	193
Reporting Safety Defects in the United States.....	193
NHTSA Statement.....	194
Reporting Safety Concerns in Canada.....	194
Required Documentation for Imported Motorcycles.....	194
Owner Contact Information.....	195
Questions and Concerns.....	195

## LIMITED MOTORCYCLE WARRANTY

2024 HARLEY-DAVIDSON LIMITED MOTORCYCLE WARRANTY.....	197
24 Months/Unlimited Miles.....	197
Disclaimers & Limitations.....	197
Warranty Duration.....	198
Owner's Obligations.....	199
Exclusions.....	199
On-Road/Off-Road Vehicles.....	200
Other Limitations.....	200
Important: Read Carefully.....	202
Environmental Factors.....	203
USA Owners 49 State Limited Emissions Warranty....	204
Items Covered by this Emission Warranty.....	206
Recommendations for Required Maintenance.....	207
California and Select International Markets Evaporative Emission Controls.....	207
California Emissions Control Warranty Statement .....	207

## TABLE OF CONTENTS

Manufacturer's Warranty Coverage.....	208
Owner's Warranty Responsibilities.....	208
Additional Warranty Terms.....	209
What Is Covered by this Emission Warranty.....	210
What Is Not Covered by this Emission Warranty.....	211
EPA Regulations.....	211
Noise Control System Limited Warranty.....	212
Recommendations for Required Maintenance.....	214
Limited Motorcycle Warranty Australia/ New Zealand Only.....	214

## SERVICE INTERVALS AND RECORDS

Service Records.....	217
----------------------	-----

Regular Service Intervals.....	217
Service Intervals.....	217
Service Actions.....	220
Maintenance Records.....	220

## APPENDIX

General.....	221
Acronyms and Abbreviations.....	221
H-D U.S.A., LLC Trademark Information.....	223
Product Registered Marks.....	223
Patents.....	223
Copyright.....	223

# YOUR OWNER'S MANUAL

## We Care About You

Welcome to the Harley-Davidson Motorcycling Family! When enjoying your Harley-Davidson motorcycle, be sure to ride safely, respectfully and within the limits of the law. Always wear a helmet, proper eyewear and protective clothing, and insist your passenger does too. Never ride while under the influence of alcohol or drugs. Know your Harley and read and understand your owner's manual from cover to cover.

This manual has been prepared to acquaint you with the operation, care and maintenance of your motorcycle and to provide you with important safety information. Follow these instructions carefully for maximum motorcycle performance and for your personal motorcycling safety and pleasure. Your Owner's Manual contains instructions for operation and minor maintenance. Major repairs are covered in the Harley-Davidson Service Manual. Such major repairs require the attention of a skilled technician and the use of special tools and equipment. Your Harley-Davidson dealer has the facilities, experience and Genuine Harley-Davidson parts necessary to properly render this valuable service. We recommend that any emission system maintenance be performed by an authorized Harley-Davidson dealer.

Attend a rider safety course. To enroll in a Harley-Davidson Riding Academy course, call 1-414-343-4056 (U.S.) or visit

[www.harley-davidson.com/learn toride](http://www.harley-davidson.com/learn toride). In the United States, for information about Motorcycle Safety Foundation rider courses, call 1-800-446-9227 or visit [www.msf-usa.org](http://www.msf-usa.org).

## United States Owners

Your Harley-Davidson motorcycle conforms to all applicable U.S. Federal Motor Vehicle Safety Standards and U.S. Environmental Protection Agency regulations effective on the date of manufacture. Protect your privilege to ride by joining the American Motorcyclist Association. Visit [www.americanmotorcyclist.com](http://www.americanmotorcyclist.com) for more information.

Harley-Davidson reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.

## CUSTOMER SERVICE ASSISTANCE

Most sales or service issues are resolved at the dealership.

1. Discuss your problem with the appropriate personnel at the dealership in the Sales, Service or Parts area. If that proves unsuccessful, speak to the owner of the dealership or the general manager.

2. If you cannot resolve the issue with the dealership, contact the Harley-Davidson Customer Support Center. Harley-Davidson Motor Company Attention: Harley-Davidson Customer Support Center P.O. Box 653 Milwaukee, Wisconsin 53201 1-800-258-2464 (U.S. only) 1-414-343-4056

For customers outside the US, contact your local Harley-Davidson market office, call 1-414-343-4056 or visit [harley-davidson.com](https://harley-davidson.com).

**Table 2. Vehicle and Personal Data**

PERSONAL INFORMATION	DEALER INFORMATION
Date of Purchase:	
Name:	Name:
Address:	Address:
Address:	Address:
Vehicle Identification Number:	Sales Contact:
Key Number:	Service Contact:

## SAFETY DEFINITIONS

Statements in this manual preceded by the following words are of special significance:

### ⚠ WARNING

**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. (00119a)

### ⚠ CAUTION

**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. (00139a)

### NOTICE

**NOTICE** indicates a potentially hazardous situation which, if not avoided, may result in property damage. (00140b)

### NOTE

*Refers to important information and is placed in italic type. It is recommended that you take special notice of these items.*

## SAFE OPERATING RULES

### ⚠ WARNING

**Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use could result in loss of control, death or serious injury.**

- Take a rider training course.
- Read owner's manual before riding, adding accessories or servicing.
- Wear a helmet, eye protection and protective clothing.
- Never tow a trailer.

(00556d)

### Harley-Davidson Motorcycles Are for On-Road Use Only

This motorcycle is not equipped with a spark arrester. This motorcycle is designed to be used only on the road. Operation on off-road usage in some areas may be illegal. Obey local laws and regulations.

## General

### ⚠ WARNING

**Consult a Harley-Davidson dealer regarding any questions or problems that occur in the operation of your motorcycle. Failure to do so can aggravate an initial problem, cause costly repairs, cause an accident and could result in death or serious injury. (00020a)**

- Make sure all equipment required by federal, state and local law is installed and in good operating condition.
- Know and respect the rules of the road. Read the safety information that is provided by your state or regional traffic authority.
- In the United States, read the RIDING TIPS booklet that is provided with this owner's manual. Read the MOTORCYCLE HANDBOOK which is made available by your state or regional traffic authority.
- Protect your motorcycle against theft. Lock the front fork. Remove the key when parking your motorcycle.

### ⚠ WARNING

**Do not add sidecar to this motorcycle. Operating motorcycle with sidecar can cause loss of vehicle control, which could result in death or serious injury. (00590d)**

## Operation

Before operating your new motorcycle, it is your responsibility to read and follow the operating and maintenance instructions in this manual and follow these rules for your personal safety.

- Before starting the engine, review the Before Riding > Pre-Ride Checklist (Page 37).

### ⚠ WARNING

**Striking an object, such as a curb or pothole can cause internal tire damage. If an object is struck, have the tire inspected immediately inside and out by a Harley-Davidson dealer. A damaged tire can fail while riding and adversely affect stability and handling, which could result in death or serious injury. (00058b)**

### ⚠ WARNING

**Travel at speeds appropriate for road and conditions and never travel faster than posted speed limit. Excessive speed can cause loss of vehicle control, which could result in death or serious injury. (00008a)**

- Do not exceed the legal speed limit or drive too fast for existing conditions. Always reduce speed when poor driving conditions exist. High speed increases the influence of any other condition affecting stability and increases the possibility of loss of control.



- Pay strict attention to road surfaces and wind conditions and keep both hands on the handlebar grips at all times when riding the motorcycle. Any two wheeled vehicle may be subject to upsetting forces such as wind blasts from passing trucks, holes in the pavement, rough road surfaces, rider control error, etc. These forces may influence the handling characteristics of your motorcycle. If this happens, reduce speed and guide the motorcycle with a relaxed grip to a controlled condition. Do not brake abruptly or force the handlebar. This may aggravate an unstable condition.
- New riders should gain experience under various conditions while riding at moderate speeds.
- Operate your motorcycle defensively. In an accident, a motorcycle does not afford the same protection as an automobile.
- It is the rider's responsibility to instruct passengers on proper riding procedures.
- Do not allow other individuals to operate the motorcycle unless they are experienced, licensed riders and are thoroughly familiar with the operation of the motorcycle.

#### **⚠ WARNING**

**If Equipped: Front and/or rear guards are not intended to provide protection from bodily injury in a collision with another vehicle or any other object. (00022d)**

## **Steering and Handling**

#### **⚠ WARNING**

**Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)**

#### **⚠ WARNING**

**Regularly inspect shock absorbers and front forks. Replace leaking, damaged or worn parts that can adversely affect stability and handling, which could result in death or serious injury. (00012a)**

#### **⚠ WARNING**

**Do not operate motorcycle with loose, worn or damaged steering or suspension systems. Contact a Harley-Davidson dealer for repairs. Loose, worn or damaged steering or suspension components can adversely affect stability and handling, which could result in death or serious injury. (00011a)**

#### **⚠ WARNING**

**Do not open storage compartments while riding. Distractions while riding can lead to loss of control, which could result in death or serious injury. (00082a)**

### **⚠ WARNING**

**When riding on wet roads, brake efficiency and traction are greatly reduced. Failure to use care when braking, accelerating or turning on wet roads can cause loss of control, which could result in death or serious injury. (00041a)**

## **Accessories and Cargo**

### **⚠ WARNING**

**Do not exceed the motorcycle's Gross Vehicle Weight Rating (GVWR) or Gross Axle Weight Rating (GAWR). Exceeding these weight ratings can lead to component failure and adversely affect stability, handling and performance, which could result in death or serious injury. (00016f)**

- GVWR is the sum of the weight of the motorcycle, accessories and the maximum weight of the rider, passenger and cargo that can be safely carried.
- The GVWR is shown on the information label, located on the frame steering head or the frame downtube.
- GAWR is the maximum amount of weight that can be safely carried on each end of the motorcycle.

- For GVWR and GAWR, front and rear. See Specifications > Specifications (Page 31).
- Keep cargo weight concentrated close to the motorcycle and as low as possible.
- Distribute weight evenly on both sides of the vehicle.
- Do not load bulky items too far behind the rider or add weight to the handlebars or front forks.
- Do not exceed maximum specified load in each saddlebag (if equipped).
- Luggage racks (if equipped) are designed for lightweight items. Do not overload racks.
- Make sure cargo is secure. Make sure the cargo will not shift while riding and check the cargo periodically. Accessories that change the operator's riding position may increase reaction time and affect handling of the motorcycle.
- Large surfaces such as fairings, windshields, backrests and luggage racks (if equipped) can adversely affect on stability and handling.

## Tires

### ⚠ WARNING

**Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)**

### ⚠ WARNING

**Replace punctured or damaged tires. In some cases, small punctures in the tread area may be repaired from within the removed tire by a Harley-Davidson dealer. Speed should NOT exceed 50 mph (80 km/h) for the first 24 hours after repair, and the repaired tire should NEVER be used over 80 mph (129 km/h). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)**

### ⚠ WARNING

**Do not use liquid tire balancers or sealants in aluminum wheels. Using liquid tire balancers or sealants can cause rapid corrosion of the rim surface, which could cause tire deflation. Tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00631b)**

- Tire pressure will vary with changes in ambient and tire temperature. Always maintain proper tire pressure as specified in Owner Manual > Specifications (Page 31). Do not load tires beyond the GAWR specified in Owner Manual > Specifications (Page 31). Under-inflated, over-inflated or overloaded tires can fail.

## Towing and Trailing

### ⚠ WARNING

**Do not pull a trailer with a motorcycle. Pulling a trailer can cause tire overload, damage and failure, reduced braking performance, and adversely affect stability and handling, which could result in death or serious injury. (00018c)**

### ⚠ WARNING

**Do not tow a disabled motorcycle. Towing can adversely affect stability and handling, which could result in death or serious injury. (00017a)**

- Never tow a trailer.

## Fuel and Exhaust

### ⚠ WARNING

Stop the engine when refueling or servicing the fuel system. Do not smoke or allow open flame or sparks near gasoline. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00002a)

### ⚠ WARNING

Avoid spills. Slowly open fuel filler cap. Do not fill above bottom of filler neck insert, leaving air space for fuel expansion. Secure filler cap after refueling. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00028b)

- Refuel in a well-ventilated area with the engine off.
- Remove the fuel filler cap slowly.
- Do not fill fuel tank above the bottom of the filler neck insert. Leave air space to allow for fuel expansion.
- If fuel tank was completely drained, add at least 1 gal (3.79 L) of gas.

### ⚠ WARNING

Avoid contact with exhaust system and wear protective clothing that completely covers legs while riding. Exhaust pipes and mufflers get very hot when engine is running and remain too hot to touch, even after engine is turned off. Failure to wear protective clothing could result in burns or other serious injury. (00009a)

### ⚠ WARNING

Do not run motorcycle in a closed garage or confined area. Inhaling motorcycle exhaust, which contains poisonous carbon monoxide gas, could result in death or serious injury. (00005a)

### ⚠ WARNING

Engine exhaust from this product contains chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. (00004f)

## Brakes

### ⚠ WARNING

Brakes are a critical safety component. Contact a Harley-Davidson dealer for brake repair or replacement. Improperly serviced brakes can adversely affect brake performance, which could result in death or serious injury. (00054a)

### ⚠ WARNING

Apply front and rear brakes evenly. Favoring one brake accelerates wear and reduces braking efficiency. Operation with excessively worn brakes can lead to brake failure, which could result in death or serious injury. (00135a)

### ⚠ WARNING

DOT 4 brake fluid absorbs moisture from the atmosphere over time, changing the properties of the fluid. Check brake fluid moisture content at every service interval or annually (whichever comes first). Flush and replace the brake fluid every two years, or sooner if moisture content is 3% or greater. Failure to flush and replace fluid can adversely affect braking, which could result in death or serious injury. (06304b)

### ⚠ WARNING

Contact with DOT 4 brake fluid can have serious health effects. Failure to wear proper skin and eye protection could result in death or serious injury.

- If inhaled: Keep calm, remove to fresh air, seek medical attention.
- If on skin: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation develops, seek medical attention.
- If in eyes: Wash affected eyes for at least 15 minutes under running water with eye lids held open. If irritation develops, seek medical attention.
- If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Contact Poison Control. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at [sds.harley-davidson.com](https://sds.harley-davidson.com)

(00240e)

To ensure the brake system is performing to design, check the moisture content of the brake fluid at every service interval or at least annually using a DOT 4 brake fluid moisture tester (part number HD-48497-A or equivalent) following the instructions included with the tool. Flush DOT 4 fluid every 2

years or sooner if the brake system fluid test shows moisture content is 3% or greater.

Harley-Davidson recommends using Harley-Davidson Platinum Label DOT 4 Brake Fluid because of its superior moisture and corrosion inhibiting properties.

## Battery

### ⚠ WARNING

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (00019e)

### ⚠ WARNING

Batteries contain sulfuric acid, which could cause severe burns to eyes and skin. Wear a protective face shield, rubberized gloves and protective clothing when working with batteries. **KEEP BATTERIES AWAY FROM CHILDREN.** (00063a)

### NOTICE

It is possible to overload the vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. (00211d)

### ⚠ WARNING



**CONTAINS BUTTON OR COIN CELL BATTERY. KEEP OUT OF REACH OF CHILDREN.**

Ingestion can result in death or serious injury. Choking, chemical burns and perforation of soft tissue may result. Severe burns can occur within 2 hours of ingestion or placement in any part of the body. Seek medical attention immediately. (13105b)

## Hazardous Materials

### ⚠ CAUTION

**Prolonged or repeated contact with used motor oil may be harmful to skin and could cause skin cancer. Promptly wash affected areas with soap and water. (00358b)**

## Maintenance

### ⚠ WARNING

**Perform the service and maintenance operations as indicated in the regular service interval table. Lack of regular maintenance at the recommended intervals can affect the safe operation of your motorcycle, which could result in death or serious injury. (00010a)**

### NOTICE

**When lifting a motorcycle using a jack, be sure jack contacts both lower frame tubes where down tubes and lower frame tubes converge. Never lift by jacking on cross-members, oil pan, mounting brackets, components or housings. Failure to comply can cause serious damage resulting in the need to perform major repair work. (00586d)**

- A new motorcycle must be operated according to the special break-in procedure. See Before Riding > Break-in Riding Rules (Page 38).
- Proper care and maintenance, including tire pressure, tire condition, tread depth and proper adjustment to steering head bearings are important to stability and safe operation of the motorcycle. See Service Intervals and Records > Service Records (Page 217).

## Parts and Accessories

### ⚠ WARNING

**Harley-Davidson parts and accessories are designed for Harley-Davidson motorcycles. Using non-Harley-Davidson parts or accessories can adversely affect performance, stability or handling, which could result in death or serious injury. (00001b)**

### ⚠ WARNING

**Use Harley-Davidson replacement fasteners. Aftermarket fasteners can adversely affect performance, which could result in death or serious injury. (00013a)**

- See your Harley-Davidson service manual for proper torque values.
- Aftermarket fasteners may not have the specific property requirements to perform properly.

## **▲ WARNING**

**See the Accessories and Cargo section in your owner's manual. Improper cargo loading or accessory installation can cause component failure and adversely affect stability, handling and performance, which could result in death or serious injury. (00021b)**

- Harley-Davidson Motor Company cannot test and make specific recommendations concerning every accessory or combination of accessories sold. Therefore, the rider must be responsible for safe operation of the motorcycle when installing accessories or carrying additional weight.
- Additional electrical equipment may overload the electrical system possibly resulting in electrical system and/or component failure.

## **RULES OF THE ROAD**

- Always use your turn signals and exercise caution when passing other vehicles going in the same direction. Never pass going in the same direction at street intersections, on curves or when going up or down a hill.
- At street intersections, give the right-of-way. Do not presume you have the right-of-way, as the other driver may not know that it is your turn.
- Always signal when preparing to stop, turn or pass.

- Promptly obey all traffic signs, including those signs used for the control of traffic at intersections. Always obey traffic signs near schools and at railroad crossings.
- When intending to turn, signal at least 100 ft (30.5 m) before reaching the turning point. If turning across an intersection, move over to the centerline of the street (unless local rules require otherwise). Slow down when entering the intersection and turn carefully.
- Never anticipate a traffic light. When a change is indicated from GO to STOP (or STOP to GO), slow down and wait for the light to change. Never run through a yellow or red traffic light.
- While turning, watch for pedestrians, animals, as well as vehicles.
- Do not leave the curb or parking area without signaling. Make sure that your way is clear to enter moving traffic. A moving line of traffic always has the right-of-way.
- Make sure that your license plate is installed in the position specified by law. Make sure that your license plate is always clearly visible. Keep the license plate clean.
- Ride at a safe speed that is consistent with the type of highway you are on. Pay strict attention to whether the road is dry, oily, icy or wet.
- Watch for debris such as leaves or loose gravel.



- Weather and traffic conditions on the highway dictate adjusting your speed and driving habits accordingly.

## **NOISE CONTROL SYSTEM**

### **Tampering**

Removal or replacement of any noise control system component may be prohibited by law. This prohibition includes modifications made prior to vehicle sale or delivery to the ultimate purchaser. Use of a vehicle on which noise control system components have been removed or rendered inoperative may also be prohibited by law.








## **SAFETY SYMBOL DEFINITIONS**

These are some of the symbols that you may see on your motorcycle and may accompany safety words, see Safety









First > Safety Definitions (Page 3). The symbols indicate potential safety hazards and avoidance actions to prevent a hazardous situation. The symbols may be present in manuals, instructions, on the motorcycle and/or Parts & Accessory product labels. Refer to Safety First > Safe Operating Rules (Page 3), the appropriate section in this manual and/or Parts & Accessory instructions for additional safety information.

- Yellow triangle: Safety symbol alerting to a hazard. Refer to Table 3.
- Red circle with line: Prohibition symbol to avoid a situation which may lead to a hazard, personal injury and/or property damage. Refer to Table 4.
- Blue circle: Mandatory action to avoid a hazard resulting in personal injury and/or property damage. Refer to Table 5.









**Table 3. General Warning Symbols**

SYMBOL	SYMBOL DEFINITION
	General Warning indicating a hazard.
	Crash hazard.
	Electric shock hazard.
	Battery charging hazard.
	Explosive material hazard.
	Corrosive chemical burn hazard.
	Hot surface hazard.


**Table 4. General Prohibition Symbols**

<b>SYMBOL</b>	<b>SYMBOL DEFINITION</b>
	General prohibition sign to signify a prohibited action.
	Do not service without proper training or tools. Qualified technician only. Not user serviceable. No user replaceable parts. Refer service to qualified technician.
	Do not touch.
	Keep away from open flame. Avoid smoking, flames, or sparks.
	Do not expose to fire.
	Do not perform action above indicated temperature.
	Never tow a trailer.
	Do not use an extension cord.




**Table 5. General Mandatory Action Symbols**

<b>SYMBOL</b>	<b>SYMBOL DEFINITION</b>
	General mandatory action.
	Keep out of reach of children.
	Refer to appropriate manual or instructions.
	Take a rider training course.
	Wear a helmet and eye protection.
	Wear proper protective riding apparel.
	Wear proper hand protection.
	Wear proper Personal Protective Equipment (PPE).

**Table 5. General Mandatory Action Symbols**

SYMBOL	SYMBOL DEFINITION
	Wear proper eye protection.

**Table 6. General Information Symbols**

SYMBOL	SYMBOL DEFINITION
	Contains button or coin cell battery. Hazardous if swallowed.
	First responder cut loop. Emergency Personnel/First Responder use only.
	Protect from rain or wet conditions.

## LABELS

See Figure 1 for safety and maintenance labels which were on the vehicle when new. Refer to Table 7.

## NOTE

*Replacement labels can be purchased for your motorcycle. See a Harley-Davidson dealer. Some labels are available in different languages for destinations outside the United States.*

Refer to Safety First > Safety Symbol Definitions (Page 13) for definitions of symbols on labels.

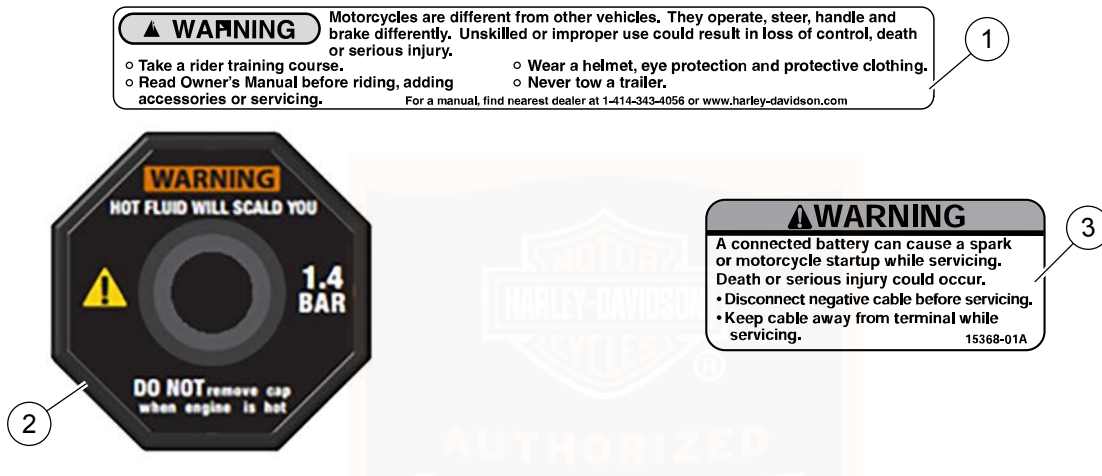


Figure 1. Labels

**Table 7. Labels**

ITEM	PART NO.	DESCRIPTION	LOCATION	TEXT
1	14001624	General warning	Top of belt guard	<p>WARNING: Motorcycles are different from other vehicles. They operate, steer, handle and brake differently. Unskilled or improper use could result in loss of control, death or serious injury.</p> <ul style="list-style-type: none"> <li>• Take a rider training course.</li> <li>• Read Owner's Manual before riding, adding accessories or servicing.</li> <li>• Wear a helmet, eye protection and protective clothing.</li> <li>• Never tow a trailer.</li> </ul> <p>For a manual, find nearest dealer at 1-414-343-4056 or <a href="http://www.harley-davidson.com">www.harley-davidson.com</a></p>
2	26800086	Radiator warning	On radiator cap	<p>WARNING: HOT FLUID WILL SCALD YOU</p> <p>1.4 BAR</p> <p>DO NOT remove cap when engine is hot</p>
3	15368-01A	Battery warning	On voltage regulator bracket	<p>WARNING: A connected battery can cause a spark or motorcycle startup while servicing. Death or serious injury could occur.</p> <ul style="list-style-type: none"> <li>• Disconnect negative cable before servicing.</li> <li>• Keep cable away from terminal while servicing.</li> </ul>

## NOTES

---





## VEHICLE IDENTIFICATION NUMBER (VIN)

### General

See Figure 3. A unique 17-digit serial or Vehicle Identification Number (VIN) is assigned to each motorcycle. Refer to Table 8.

### Location

See Figure 2. The full 17-digit VIN is stamped on the right side of the frame near the steering head. In some destinations, a printed VIN label is also attached on the front downtube.

### Abbreviated VIN

An abbreviated VIN showing the vehicle model, engine type, model year, and sequential number is stamped on the left side of the crankcase below the gear shifter.

### NOTE

*Always give the full 17-digit Vehicle Identification Number when ordering parts or making any inquiry about your motorcycle.*

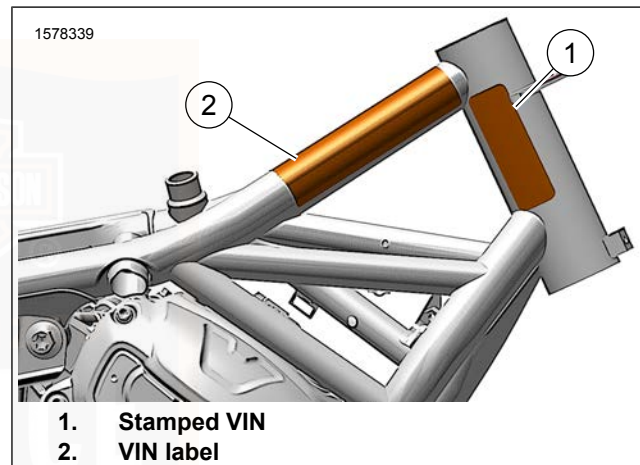


Figure 2. VIN Locations

1845681

1 2 3 4 5 6 7 8 9

**1HD 1 ZC 4 1 9 R B 600041**

**Figure 3. Typical Harley-Davidson VIN: 2024 Harley-Davidson Sportster RH**

**Table 8. Harley-Davidson VIN Breakdown: 2024 Sportster RH**

POSITION	DESCRIPTION	POSSIBLE VALUES
1	World manufacturer identifier	1HD=Originally manufactured in the United States 5HD=Originally manufactured in the United States or Thailand for sale outside of the United States 932=Originally manufactured in Brazil MLY=Originally manufactured in Thailand
2	Motorcycle type	1=Heavyweight motorcycle (901 cm <sup>3</sup> or larger)
3	Model	See VIN model table
4	Engine type	4=Revolution Max™ 1250T cm <sup>3</sup> liquid-cooled, fuel-injected

**Table 8. Harley-Davidson VIN Breakdown: 2024 Sportster RH**

POSITION	DESCRIPTION	POSSIBLE VALUES
5	Calibration/configuration, introduction	1=Domestic (DOM) 2=California (CAL) 3=Canada (CAN) 4=ENG/EN2/HDI/HD2/HD4 5=Japan (JPN) 6=Australia (AUS) 7=Brazil (BRZ) 8=Asia Pacific (APC) 9=IND/IN2 0=ASEAN (AZN) A=China (CHN) G=HD3
6	VIN check digit	Can be 0-9 or X
7	Model year	R=2024
8	Assembly plant	B=York, PA U.S.A. D=H-D Brazil-Manaus, Brazil (CKD) S=Tasit, Pluagdang, Rayong, Thailand
9	Sequential number	Varies

**Table 9. VIN Model Codes: Sportster RH Models**

CODE	MODEL	CODE	MODEL
ZC	RH1250S Sportster® S	ZH	RH975 Nightster™
ZF	RH975S Nightster™ Special		

## MODELS AND FEATURES

Some models, features or configurations shown in this manual may not be available in all markets.

## PRIMARY CONTROLS AND SERVICE COMPONENTS

Familiarize yourself with the location of all the controls and service components on your motorcycle.

### NOTE

*Illustrations are for general reference only. Controls and service components shown are general locations and*

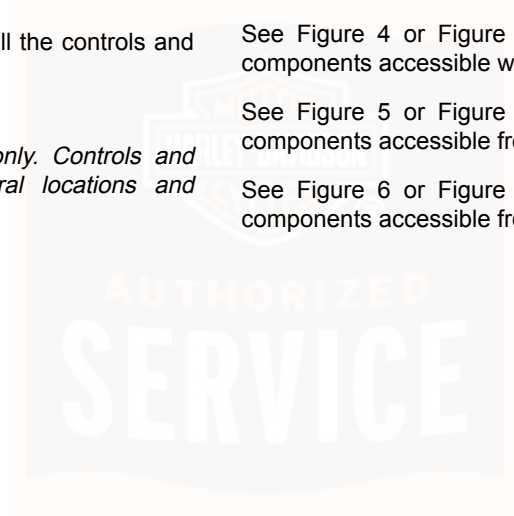
*representations that do not show a specific model of motorcycle.*

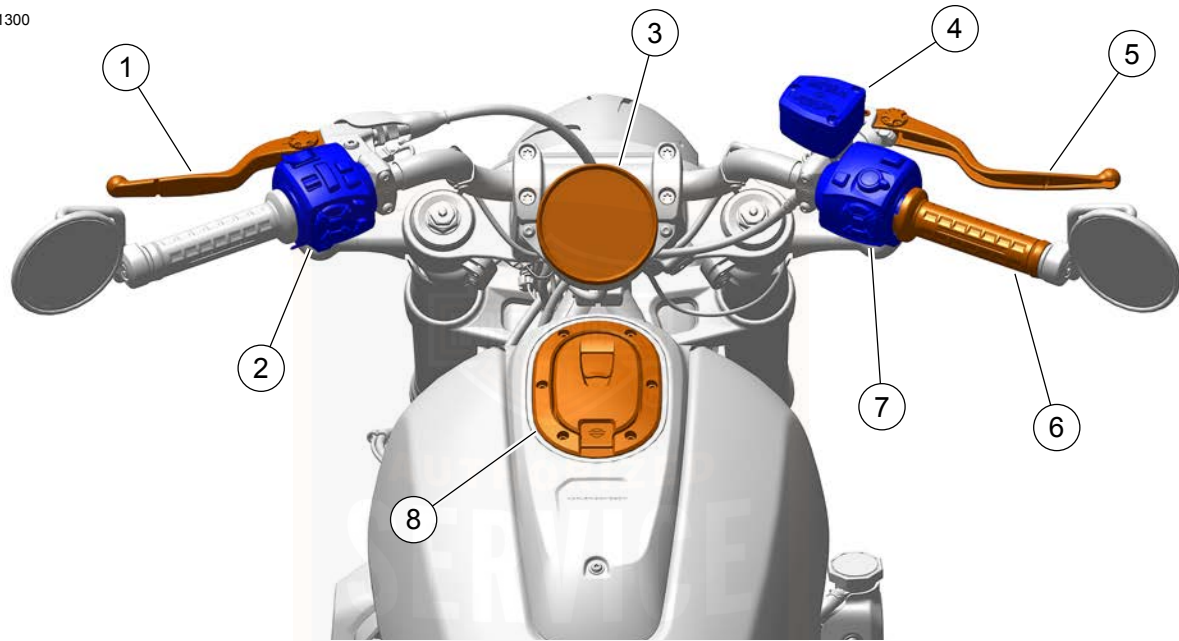
*Harley-Davidson reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.*

See Figure 4 or Figure 7. for rider controls and service components accessible when seated.

See Figure 5 or Figure 8. for rider controls and service components accessible from the right.

See Figure 6 or Figure 9. for rider controls and service components accessible from the left.

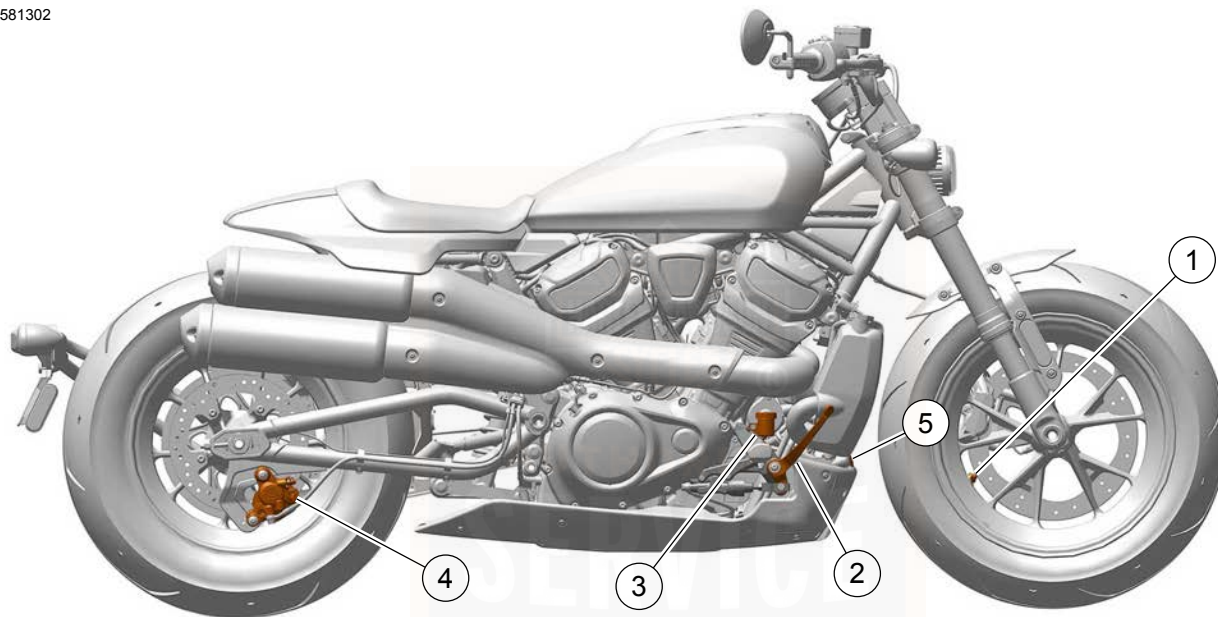




- 1. Clutch hand lever
- 2. Left hand control module
- 3. Instrument Module (IM)
- 4. Front brake fluid reservoir

- 5. Front brake lever
- 6. Throttle twist grip
- 7. Right hand control module
- 8. Fuel filler door

**Figure 4. Controls and Service Components (1250 Models Typical)**



1. Air pressure valve

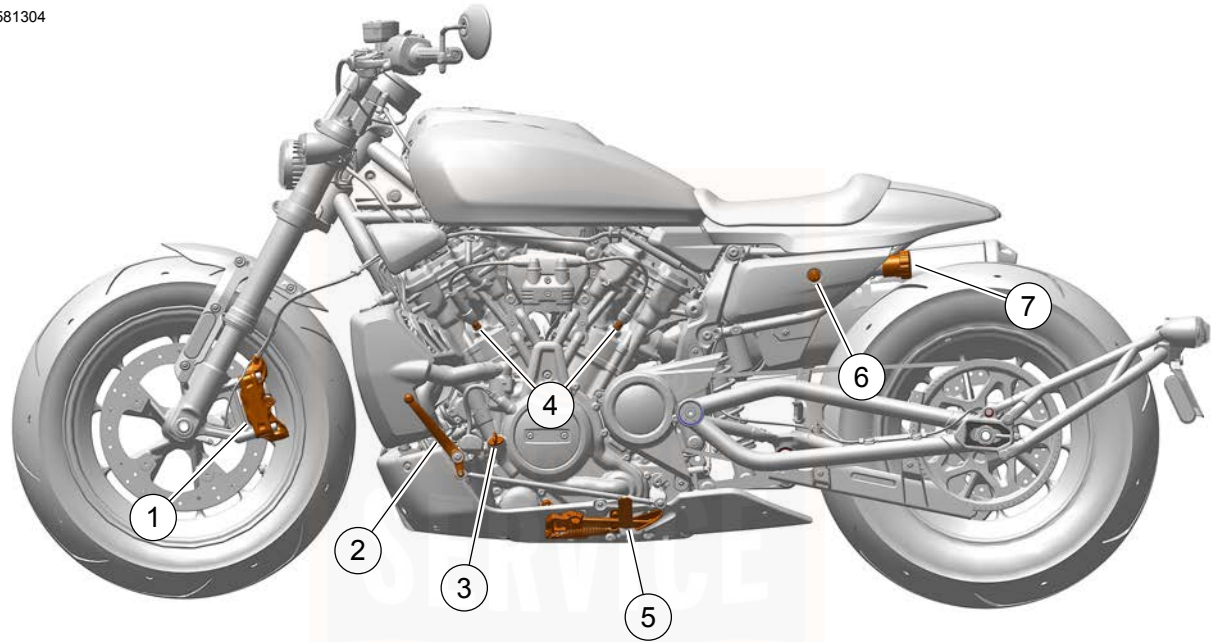
2. Rear brake pedal

3. Rear brake fluid reservoir

4. Rear brake caliper

5. Coolant filler cap/dipstick

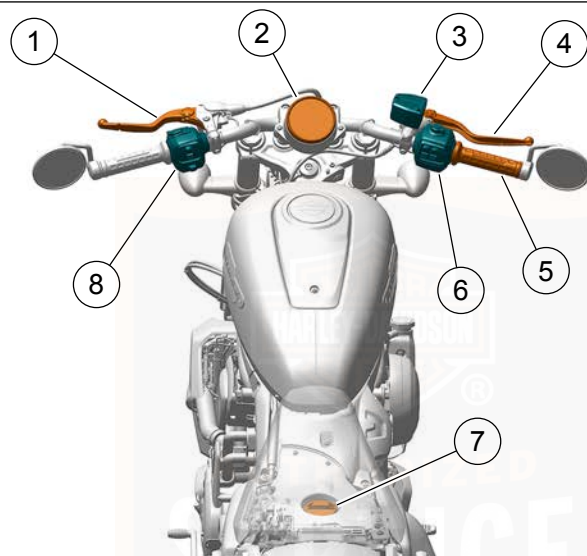
**Figure 5. Controls and Service Components (1250 Models Typical)**



- 1. Front brake caliper
- 2. Gear shift lever
- 3. Oil filler cap/dipstick
- 4. Spark plug

- 5. Jiffy stand
- 6. Seat latch
- 7. Rear suspension adjuster

**Figure 6. Controls and Service Components (1250 Models Typical)**

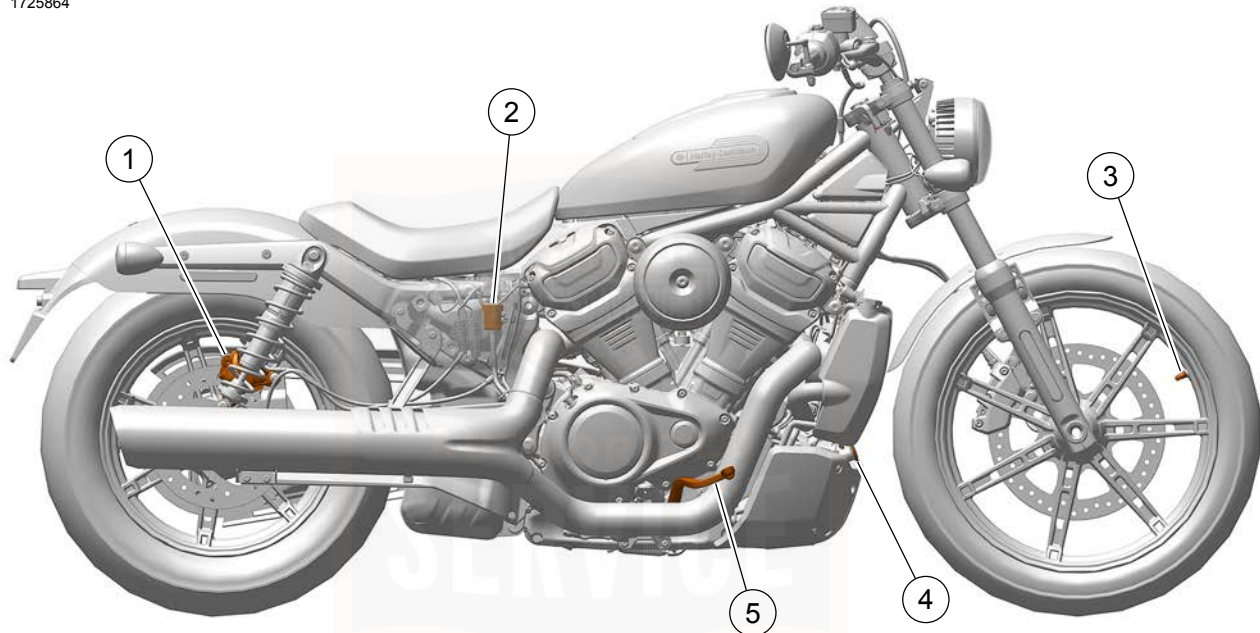


- 1. Clutch hand lever
- 2. Instrument module (IM)
- 3. Front brake fluid reservoir
- 4. Front brake lever

- 5. Throttle twist grip
- 6. Right hand control module
- 7. Fuel filler cap (under seat)
- 8. Left hand control module

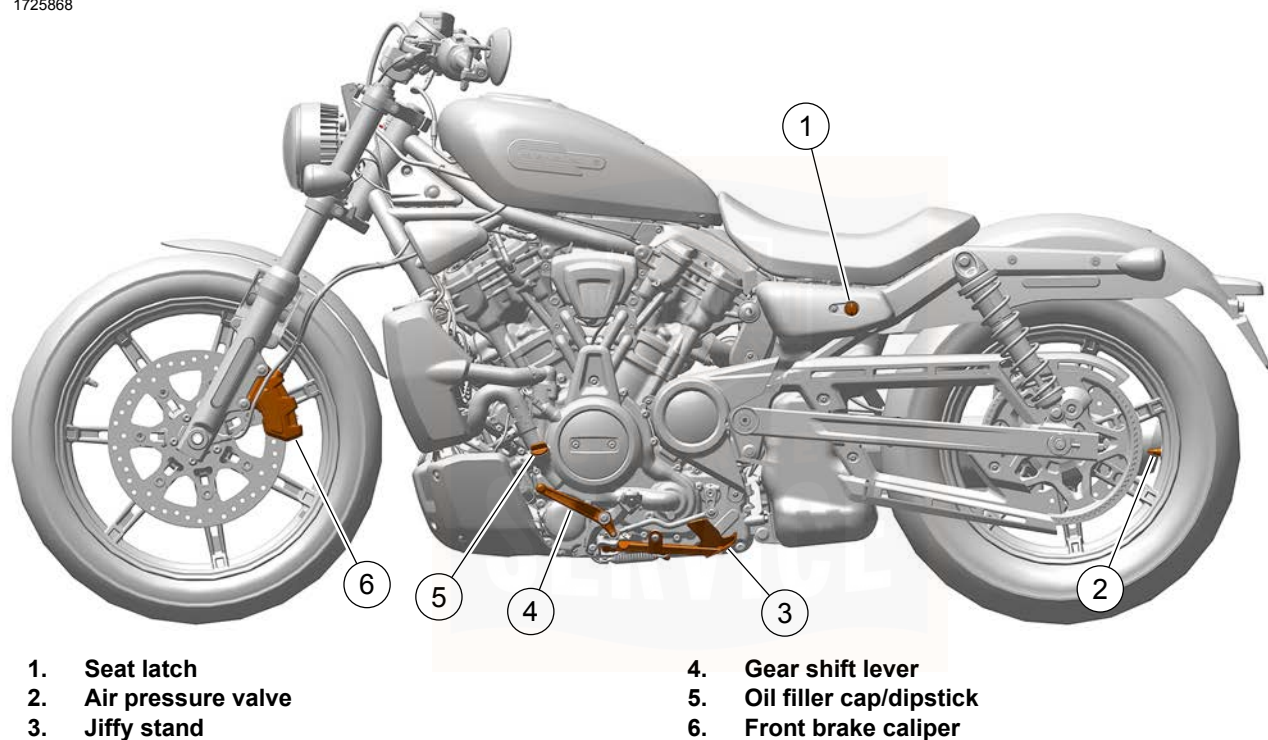
**Figure 7. Controls and Service Components (975 Models Typical)**





- |   |                                |
|---|--------------------------------|
| 1. Rear brake caliper                             | 4. Coolant filler cap/dipstick |
| 2. Rear brake fluid reservoir (behind side cover) | 5. Rear brake pedal            |
| 3. Air pressure valve                             |                                |

**Figure 8. Controls and Service Components (975 Models Typical)**



**Figure 9. Controls and Service Components (975 Models Typical)**

## SPECIFICATIONS

### NOTE

- Specifications in this publication may not match those of official certification in some markets due to timing of publication printing, variance in testing methods, and/or motorcycle differences. Customers seeking officially recognized regulatory specifications for their motorcycle should refer to certification documents and/or contact their respective dealer or distributor.

- Harley-Davidson reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.

## Tires

Table 10. Specified Tires

MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE COLD	
				psi	kPa
RH1250S Sportster® S	Front	17 in	Dunlop® Harley-Davidson Series GT503 160/70R17 73V	36 psi	248 kPa
RH1250S Sportster® S	Rear	16 in	Dunlop® Harley-Davidson Series GT503 180/70R16 77V	42 psi	290 kPa
RH975 Nightster™, RH975S Nightster™ Special	Front	19 in	Dunlop® D401F 100/90B19 57H BW	31 psi	214 kPa
RH975 Nightster™, RH975S Nightster™ Special	Rear	16 in	Dunlop® D401T 150/80B16 77H BW	40 psi	276 kPa

## ⚠ WARNING

Harley-Davidson recommends the use of its specified tires. Harley-Davidson vehicles are not designed for operation with non-specified tires, including snow, moped and other special-use tires. Use of non-specified tires can adversely affect stability, handling or braking and lead to loss of vehicle control, which could result in death or serious injury. (00024d)

## Weights and Dimensions

Table 11. Weights

ITEM	Sportster® S (RH1250S)		Nightster™ (RH975)		Nightster™ Special (RH975S)	
	lb	kg	lb	kg	lb	kg
Running weight <sup>(1)</sup>	502	228	481	218	483	219
Maximum added weight allowed <sup>(2)</sup>	420	190	441	200	439	199
GVWR	922	418	922	418	922	418
GAWR front	359	163	353	160	353	160
GAWR rear	595	270	595	270	595	270
(1) The total weight of the motorcycle as delivered with all oil/fluids and approximately 90% of fuel.						
(2) The total weight of accessories, cargo, riding gear, passenger and rider must not exceed this weight.						

Table 12. Dimensions

ITEM	Sportster® S (RH1250S)		Nightster™ (RH975)		Nightster™ Special (RH975S)	
	in	mm	in	mm	in	mm
Length	89.4	2270	89.4	2270	87.0	2210
Overall Width	33.1	840	33.1	840	33.6	853
Overall height	42.7	1085	43.6	1108	45.5	1155
Wheel base	59.8	1520	61.3	1556	61.3	1556
Road clearance	3.5	90	4.5	114	4.5	114
Seat height <sup>(1)</sup>	28.9	734	27.1	688	27.1	688
<i>(1) With 180 lb (81.7 kg) rider on seat</i>						

## Capacities

Table 13. Capacities

ITEM	Sportster® S (RH1250S)		Nightster™ (RH975) Nightster™ Special (RH975S)	
	U.S.	METRIC	U.S.	METRIC
Fuel tank (total)	3.1 gal	11.8 L	3.1 gal	11.7 L
Low fuel warning light on (approximate)	0.8 gal	3 L	0.8 gal	3 L
Engine oil capacity	4.75 qt	4.5 L	4.75 qt	4.5 L
Service oil change capacity	4.0 qt	3.8 L	4.0 qt	3.8 L
Coolant (approximate)	2.32 qt	2.2 L	2.22 qt	2.1 L

## Engine and Transmission

**Table 14. Engine**

ITEM	Sportster® S (RH1250S)		Nightster™ (RH975) Nightster™ Special (RH975S)	
	SPECIFICATION		SPECIFICATION	
Number of cylinders	2		2	
Type	4-cycle, 60 degree V-Type, Liquid cooled Dual over head camshafts (DOHC)		4-cycle, 60 degree V-Type, Liquid cooled Dual over head camshafts (DOHC)	
Compression ratio	12.0:1		12.0:1	
Bore	4.13 in	105 mm	3.82 in	97 mm
Stroke	2.85 in	72.3 mm	2.59 in	66 mm
Displacement	76.4 in³	1252 cm³	59.5 in³	975 cm³
Maximum Revolutions Per Minute (rpm)	9500 rpm <sup>(1)</sup>			
Fuel requirement	Premium unleaded		Premium unleaded	
Lubrication system	Pressurized, semi-dry sump		Pressurized, semi-dry sump	
(1) Maximum rpm is limited until engine reaches full operating temperature, when transmission is in neutral with clutch lever released and when maximum rpm is held for more than 3 seconds.				

**Table 15. Transmission**

TRANSMISSION	SPECIFICATION
Type	Constant mesh, foot shift
Speeds	6 forward

**Table 16. Spark Plug Specifications**

SPARK PLUG	SPECIFICATIONS
Gap	0.028–0.031 in (0.7–0.8 mm)

## Electrical

**Table 17. Electrical**

ITEM	SPECIFICATION
Ignition timing	Not adjustable

**Table 17. Electrical**

ITEM	SPECIFICATION
Battery	12 V, 12 Ah, 225 CCA sealed and maintenance free
Charging system	45 A maximum output



## NOTES

---





## REMOVING MOTORCYCLE FROM STORAGE

1. Charge and install the battery. See Service Procedures > Battery Maintenance (Page 166).
2. Inspect drive belt and sprocket. See Maintenance and Lubrication > Check Drive Belt Deflection (Page 152).
3. Perform the items in the Before Riding > Pre-Ride Checklist (Page 37).

## PRE-RIDE CHECKLIST

1. Check the amount of fuel in the tank. Add fuel if required. See Before Riding > Filling the Fuel Tank (Page 39).
2. Adjust mirrors to proper riding positions. See Before Riding > Adjusting Mirrors (Page 50).
3. Check the engine oil level. See Maintenance and Lubrication > Check Engine Oil Level (Page 142).
4. Check coolant level. See Maintenance and Lubrication > Coolant (Page 157).
5. Check brake fluid level. See Maintenance and Lubrication > Checking Brake Fluid Level and Changing Brake Fluid (Page 148).

6. Inspect brake pads and discs for wear. See Maintenance and Lubrication > Inspecting Brake Pads and Discs (Page 147).
7. Check the hand and foot controls to be sure they are operating properly. Operate the front and rear brakes, throttle, clutch and shifter. See Owner Manual > Operation (Page 77).
8. Inspect brake lines for wear or damage.
9. Check steering for smoothness by turning the handlebar through the full operating range.

### **⚠ WARNING**

**Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)**

10. Check tire condition, pressure and motorcycle loading. Refer to Before Riding > Checking Tire Pressure and Inspecting Tires (Page 44) for correct tire inflation pressure and motorcycle weight allowances.

Before Riding 37

11. Check suspension front and rear pre-load settings. Adjust to motorcycle loading, if necessary. Refer to Before Riding > Suspension Adjustments (Page 51), Before Riding > Adjusting Rear Shock Absorbers (Page 52) and Before Riding > Adjusting Front Shock Absorbers (Page 61).
12. Check for any fuel, oil or hydraulic fluid leaks.
13. Check drive belt for wear or damage.

#### **⚠ WARNING**

**Be sure headlamp, tail and stop lamp and turn signals are operating properly before riding. Poor visibility of rider to other motorists can result in death or serious injury. (00478b)**

14. Check all electrical equipment and switches including the stop lamp, turn signals and horn for proper operation.
15. Service your motorcycle as necessary.

## **BREAK-IN RIDING RULES**

### **The First 500 Miles (800 Kilometers)**

The sound design, quality materials, and workmanship that are built into your new Harley-Davidson will give you optimum performance right from the start.

To allow your engine to wear-in its critical parts, we recommend that you observe the riding rules provided below for the first 500 mi (805 km).

1. During the first 50 mi (80 km) of riding, keep the engine speed below 5000 rpm in any gear. Do not lug the engine by running or accelerating at very low rpm, or by running at high rpm longer than needed for shifting or passing.
2. Up to 500 mi (805 km), vary the engine speed and avoid operating at any steady engine speed for long periods. Engine speed up to 7000 rpm in any gear is permissible.
3. Drive slowly and avoid fast starts at wide open throttle until the engine has warmed up.
4. Avoid lugging the engine by not running the engine at very low speeds in higher gears.
5. Avoid hard braking. Break-in new brakes with moderate use for the first 100 mi (161 km).

## FILLING THE FUEL TANK

See Safety First > Safe Operating Rules (Page 3) and review the following safety alerts.

### ⚠ WARNING

**Avoid spills. Slowly open fuel filler cap. Do not fill above bottom of filler neck insert, leaving air space for fuel expansion. Secure filler cap after refueling. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00028b)**

### ⚠ WARNING

**Use care when refueling. Pressurized air in fuel tank can force gasoline to escape through filler tube. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00029a)**

### ⚠ WARNING

**Do not store motorcycle with gasoline in tank within the home or garage where open flames, pilot lights, sparks or electric motors are present. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00003a)**

### ⚠ WARNING

**Do not use aftermarket fuel caps. Aftermarket fuel caps may fit improperly and leak, which could lead to death or serious injury. See a Harley-Davidson dealer for approved fuel caps. (00034a)**

### NOTICE

**Do not spill fuel onto the motorcycle while refueling. Immediately wipe up fuel spills on your motorcycle. Fuel can cause damage to cosmetic surfaces. (00147b)**

### NOTICE

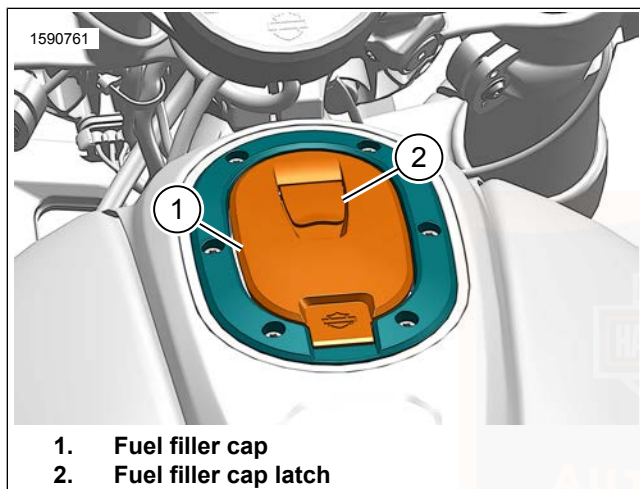
**Use only unleaded fuel in catalytic converter-equipped motorcycles. Using leaded fuel will damage the emission control system. (00150c)**

Modern service station pumps dispense a high flow of gasoline into a motorcycle fuel tank. This can cause air entrapment and pressurization.

## FUEL FILLER CAP (Top Mounted Fuel Tank)

### Open

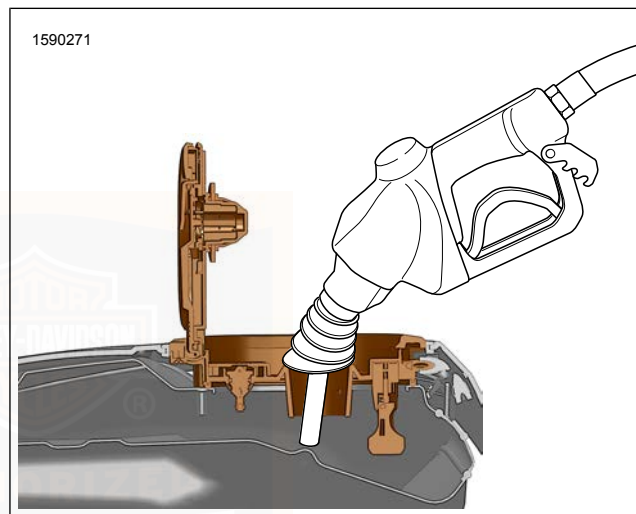
See Figure 10. Lift fuel filler cap latch (2) to open filler cap (1).



**Figure 10. Fuel Tank**

## Filling

See Figure 11. Do not overfill the fuel tank. Fully insert the pump nozzle into the filler hole. Do not fill the tank beyond the bottom of the filler neck. A warm engine, the sun or extreme temperatures can cause the fuel to expand. Fuel can spill out of the tank and damage the finish. See Safety First > Safe Operating Rules (Page 3).



**Figure 11. Fuel Level below Filler Neck**

## Close

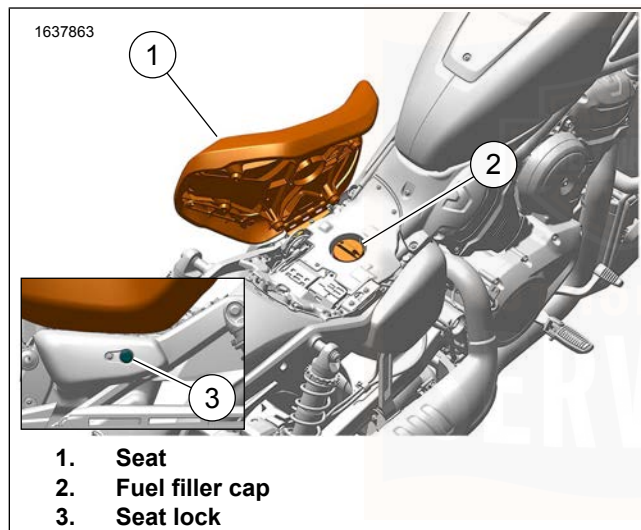
Close filler cap, push cap down firmly until latch clicks.

## FUEL FILLER CAP (Under Seat Fuel Tank)

## Open

1. See Figure 12. Unlock seat.

2. Lift seat (1) to access fuel cap.
3. Turn fuel cap (2) counterclockwise to remove. The cap turns approximately three-quarters of a turn before it begins to loosen.



**Figure 12. Fuel Fill (Under Seat Fuel Tank)**

## Filling

Do not overfill the fuel tank. Fully insert the pump nozzle into the filler hole. Do not fill the tank beyond the bottom of the filler neck. A warm engine, the sun or extreme temperatures can cause the fuel to expand. Fuel can spill out of the tank and damage the finish. See Safety First > Safe Operating Rules (Page 3).

## Close

1. Turn fuel filler cap clockwise until it clicks to install. The ratchet action of the cap prevents over-tightening.
2. Lower seat and latch.
3. Lock seat.

## FUEL SYSTEM INFORMATION

### Gasoline

Your motorcycle was designed to get the best performance and efficiency using unleaded gasoline. Most gasoline is blended with alcohol and/or ether to create oxygenated blends. The type and amount of alcohol or ether added to the fuel is important.

#### NOTICE

**Do not use gasoline that contains methanol. Doing so can result in fuel system component failure, engine damage and/or equipment malfunction. (00148a)**

#### NOTICE

**Use only unleaded fuel in catalytic converter-equipped motorcycles. Using leaded fuel will damage the emission control system. (00150c)**

- ETHANOL fuel is a mixture of ethanol (grain alcohol) and unleaded gasoline and can have an impact on fuel mileage.

- REFORMULATED OR OXYGENATED GASOLINES (RFG) describes gasoline blends that are specifically designed to burn cleaner than other types of gasoline. This results in fewer tailpipe emissions. They are also formulated to reduce evaporative losses to the environment. Reformulated gasolines use additives to oxygenate the gas. Your motorcycle will run normally using this type of fuel. Harley-Davidson recommends using it whenever possible as an aid to cleaner air in our environment.
- Some gasoline blends might adversely affect starting, driveability or fuel efficiency. If any of these problems are experienced, try a different brand of gasoline or gasoline with a higher octane blend.

**Table 18. Octane Rating**

SPECIFICATION	RATING
Pump Octane (R+M)/2	91 (95 RON)

**Table 19. Fuel Specification**

Common Identifier	Specification	Rating
MTBE	Methyl Tertiary Butyl Ether	Gasoline/Methyl Tertiary Butyl Ether (MTBE) blends are a mixture of gasoline and as much as 15% MTBE. Gasoline/MTBE blends use in your motorcycle is approved.
Methanol	Methanol or Racing Fuel	Do not use racing fuel or fuel containing methanol; use of these fuels will damage the fuel system.
E5	5% Ethanol	Fuels with an ethanol content of up to 5% (E5) may be used in your motorcycle without affecting vehicle performance.
E10	10% Ethanol	Fuels with an ethanol content of up to 10% (E10) may be used in your motorcycle without affecting vehicle performance. United States customers: The United States' Clean Air Act prohibits the use of gasoline blends containing greater than 10% ethanol in motorcycles.
	22% Ethanol	Fuel in the Brazilian market has ethanol content which ranges from 21–27.5%. Harley-Davidson Motorcycles configured for Brazil are equipped with engine control calibrations developed to work properly with these fuels. Use of fuels with high ethanol content in Harley-Davidson motorcycles intended for other regulatory markets may result in poor drivability, setting of the check engine light and potential engine damage.
E85	85% Ethanol	Do not use fuel containing 85% ethanol. Use of these fuels will damage the fuel system and may lead to engine damage.

## Catalytic Converter

Vehicles in some markets are equipped with catalytic converters.

### NOTICE

**Do not operate catalytic converter-equipped vehicle with engine misfire. If you operate the vehicle under this condition, the exhaust will become abnormally hot, which can cause vehicle damage, including emission control loss. (00149c)**

## ABS BRAKE SYSTEM IDENTIFICATION

### Identification

See Figure 13. Models with ABS can be identified by a Wheel Speed Sensor (WSS) on the left side of the front wheel.

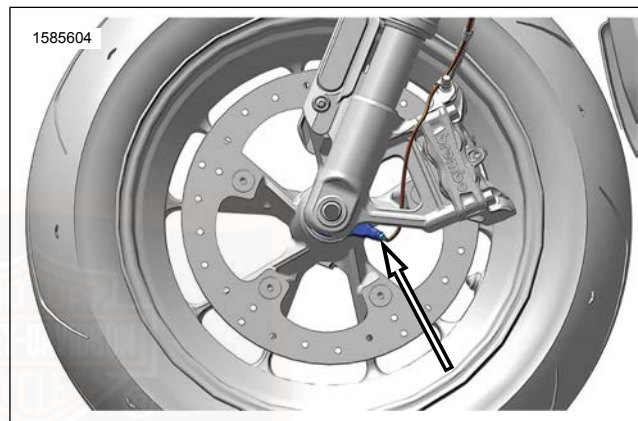


Figure 13. Wheel Speed Sensor (ABS identification)

## CHECKING TIRE PRESSURE AND INSPECTING TIRES

### General Information

#### ⚠ WARNING

**Match tires, tubes, rim strips or seals, air valves and caps to the correct wheel. Contact a Harley-Davidson dealer. Mismatching can lead to tire damage, allow tire slippage on the wheel or cause tire failure, which could result in death or serious injury. (00023c)**



**⚠ WARNING**

**Harley-Davidson front and rear tires are not the same. Interchanging front and rear tires can cause tire failure, which could result in death or serious injury. (00026a)**

## **Tire Pressure**

**⚠ WARNING**

**Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)**

Tire pressures should be set using information in Table 20 and Table 21. Tires are considered Cold Tires if the vehicle has not been recently ridden. The tire pressure increases as the tire warms. Tires can warm due to both riding and high ambient air temperatures. Tires can remain warm for up to 2 hours after riding. For the most accurate reading, check tire pressures with a good gauge before riding while the tires are cold.

Check tire pressure:

- As part of the pre-ride checklist.
- At every scheduled service interval.

For Cold Tires with an Ambient Air Temp of 68 °F (20 °C) or less: Refer to Table 20.

**Table 20. Specified Tires**

MODEL	MOUNT	SIZE	SPECIFIED TIRE	PRESSURE COLD	
				psi	kPa
RH1250S Sportster® S	Front	17 in	Dunlop® Harley-Davidson Series GT503 160/70R17 73V	36 psi	248 kPa
RH1250S Sportster® S	Rear	16 in	Dunlop® Harley-Davidson Series GT503 180/70R16 77V	42 psi	290 kPa
RH975 Nightster™, RH975S Nightster™ Special	Front	19 in	Dunlop® D401F 100/90B19 57H BW	31 psi	214 kPa
RH975 Nightster™, RH975S Nightster™ Special	Rear	16 in	Dunlop® D401T 150/80B16 77H BW	40 psi	276 kPa

For Cold Tires with an Ambient Air Temp higher than 68 °F (20 °C): Refer to the first column in Table 21 to determine the tire pressure adjustments. For example: If the motorcycle has not been ridden for 2 hours or more and the ambient temperature is 88 °F (31 °C), the recommended front and rear pressures are Table 20 pressures plus 2 psi (14 kPa).

Tires warm due to riding which increases the tire pressure. If the vehicle has been recently ridden, refer to the second column in Table 21 to determine the tire pressure adjustment. For example: If the motorcycle has been recently ridden and

the ambient temperature is 88 °F (31 °C), the recommended front and rear pressures are the Table 20 pressures plus 7 psi (48 kPa).

If a tire pressure adjustment is made when the vehicle has been recently ridden, re-adjust the tire pressure per recommendations when the tires have cooled. Tires can remain warm for up to 2 hours after riding.

Harley-Davidson does not perform any testing with only nitrogen in tires. Harley-Davidson neither recommends nor discourages the use of pure nitrogen to inflate tires.

**Table 21. Tire Pressure Adjustment**

<b>AMBIENT AIR TEMPERATURE</b>	<b>MOTORCYCLE NOT RIDDEN FOR 2 HOURS OR MORE: ADD TO FRONT AND REAR PRESSURES IN SPECIFIED TIRES TABLE</b>	<b>MOTORCYCLE RECENTLY RIDDEN: ADD TO FRONT AND REAR PRESSURES IN SPECIFIED TIRES TABLE</b>
68 °F (20 °C) or less	0 psi (0 kPa)	5 psi (34 kPa)
79 °F (26 °C)	1 psi (7 kPa)	6 psi (41 kPa)
88 °F (31 °C)	2 psi (14 kPa)	7 psi (48 kPa)
99 °F (37 °C)	3 psi (21 kPa)	8 psi (55 kPa)
108 °F (42 °C) or higher	4 psi (28 kPa)	9 psi (62 kPa)

## Inspecting Tires

### ⚠ WARNING

**Replace tire immediately with a Harley-Davidson specified tire when wear bars become visible or only 1/32 in (1 mm) tread depth remains. Riding with a worn tire could result in death or serious injury. (00090c)**

Check tire tread:

- As part of the pre-ride checklist.
- At every scheduled service interval.

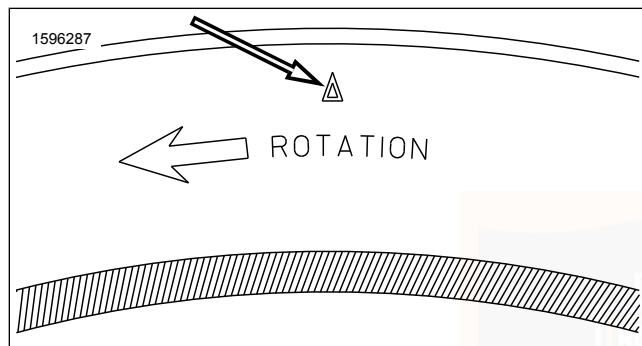
1. Inspect each tire for punctures, cuts and breaks.

Harley-Davidson tires are equipped with wear bars that run horizontally across the tread.

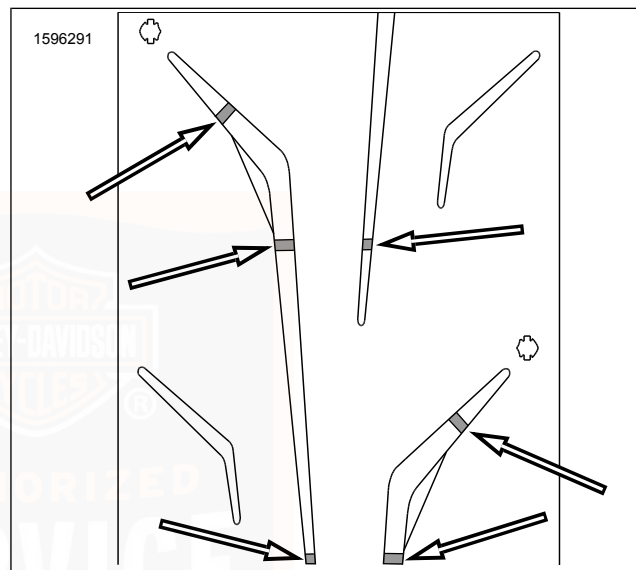
A tire is considered worn when the wear bars are visible or if only 0.031 in (0.8 mm) tread depth remains. A worn tire can:

- Be more easily damaged leading to tire failure.
- Provide reduced traction.
- Adversely affect stability and handling.

See Figure 15. Always replace tires before the tread wear bars appear.



**Figure 14. Dunlop Sidewall Tread Wear Indicator Bar Locator**



**Figure 15. Dunlop Tread Wear Indicator Bar Appearance**

## Replacing Tires

### ⚠ WARNING

Tires are a critical safety component. Contact a Harley-Davidson dealer for tire repair or replacement. Improper tire service can adversely affect stability and handling, which could result in death or serious injury. (00057a)

### ⚠ WARNING

Harley-Davidson recommends the use of its specified tires. Harley-Davidson vehicles are not designed for operation with non-specified tires, including snow, moped and other special-use tires. Use of non-specified tires can adversely affect stability, handling or braking and lead to loss of vehicle control, which could result in death or serious injury. (00024d)

### ⚠ WARNING

Only install original equipment tire valves and valve caps. A valve, or valve and cap combination, that is too long or too heavy can strike adjacent components and damage the valve, causing rapid tire deflation. Rapid tire deflation can cause loss of vehicle control, which could result in death or serious injury. (00281a)

### ⚠ WARNING

Replace punctured or damaged tires. In some cases, small punctures in the tread area may be repaired from within the removed tire by a Harley-Davidson dealer. Speed should NOT exceed 50 mph (80 km/h) for the first 24 hours after repair, and the repaired tire should NEVER be used over 80 mph (129 km/h). Failure to follow this warning could lead to tire failure and result in death or serious injury. (00015b)

### ⚠ WARNING

Replace tire immediately with a Harley-Davidson specified tire when wear bars become visible or only 1/32 in (1 mm) tread depth remains. Riding with a worn tire could result in death or serious injury. (00090c)

New tires are needed if any of the following conditions exist (refer to Table 20 for the specified replacement tires):

- Tread wear bars become visible on the tread surfaces.
- Tire cords or fabric become visible through cracked sidewalls, snags or deep cuts.
- Bumps, bulges or slits in the tire.
- Punctures, cuts, or other damage to the tire that cannot be repaired.

When installing tires on rims, do not rely on tread design to determine direction of rotation. Always be sure the rotational arrows molded into the sidewalls point in the direction of rotation when the vehicle is moving forward.

## ADJUSTING MIRRORS

### ⚠ WARNING

Objects in mirrors are closer than they appear. Use caution when judging distance of objects in mirrors. Failure to judge correct distances could result in death or serious injury. (00033a)

Adjust mirrors so you can see a small portion of your shoulders in each mirror. This will help you establish the relative distance of vehicles to the rear of your motorcycle.

## OPERATING JIFFY STAND

### Location

### ⚠ WARNING

Always park motorcycle on a level, firm surface. An unbalanced motorcycle can fall over, which could result in death or serious injury. (00039a)

### ⚠ WARNING

The jiffy stand locks when placed in the full forward (down) position with vehicle weight on it. If the jiffy stand is not in the full forward (down) position with vehicle weight on it, the vehicle can fall over which could result in death or serious injury. (00006a)

### ⚠ WARNING

Be sure jiffy stand is fully retracted before riding. If jiffy stand is not fully retracted, it can contact the road surface causing a loss of vehicle control, which could result in death or serious injury. (00007a)

### NOTE

*When parking your motorcycle on a grade, place the transmission in gear after turning off the engine.*

See Figure 6 or Figure 9. The jiffy stand is located on the left side of the motorcycle.

### Jiffy Stand Switch (If equipped)

On models equipped with the jiffy stand interlock switch, the motorcycle will start and run with the jiffy stand down while the transmission is in neutral. If the jiffy stand is down and the transmission in gear, engaging the clutch stalls the

motorcycle. Raising the jiffy stand or putting the transmission in neutral will permit the engine to run.

While the motorcycle is in motion at speeds greater than 15km/h (10mph), lowering the jiffy stand will not stop the engine.

## SUSPENSION ADJUSTMENTS

### Suspension Definitions

Damping is set at the factory for the average solo rider under normal riding conditions. The rider may make adjustments to compensate for individual riding styles and varying road conditions.

Evaluating and changing the rebound and compression damping is a very subjective process with many variables and should be approached carefully.

**Damping:** Resistance to velocity of suspension movement. Damping affects how easily the suspension can move and limits oscillations of the system once movement has begun.

**Compression:** The suspension is compressed when the wheel moves upward (when riding over a bump).

**Rebound:** The suspension is rebounding when it is moving back from being compressed (rebounding to the road surface after a bump).

**Preload:** An adjustment made to the rear shock and front fork springs to limit vehicle and rider sag to a standard percentage of total suspension travel.

### Suspension Tuning

Make all suspension adjustments in small increments. Radical setting changes may cause you to skip the best adjustment.

Refer to Table 22. Possible suspension and operating characteristics and their probable causes are listed. This table is helpful in keeping your motorcycle in good operating condition.

To achieve the proper settings you will need the preload properly adjusted, the tires properly inflated and a familiar bumpy road. It is useful if the road contains a variety of different kinds of bumps from small sharp bumps such as potholes or frost heaves to large cracks.

**Table 22. Suspension Tuning**

<b>SUSPENSION CHARACTERISTICS</b>	<b>SOLUTION</b>
Bike wallows through turns.	Increase rebound damping.
Bike feels loose or vague after bumps.	
Wheel tends to "pogo" or suffer continuous bouncing after passing a bump. This is often noticable by watching the bike as it travels over bumps.	
Wheel responds to bump but doesn't return to ground quickly after bumps. This is more pronounced over a series of bumps and is often referred to as "packing down."	Reduce rebound damping.
Bike bottoms in dips or while cornering.	Increase compression damping.
Bike has excessive brake dive.	
Harsh ride, particularly over washboard surfaces.	Reduce compression damping.
Bumps transfer through handlebars or seat.	
Suspension seems not to respond to bumps. Tires chatter through corners or rider is jolted over rough roads.	

## **Changes in Load**

The front and rear preload setting will need to be adjusted for the rider's weight and cargo. This adjustment should be made before the motorcycle is ridden any distance and after changing the overall vehicle weight (adding saddlebags, etc.).

Changes in the load carried require changes in the preload settings. Carrying less weight than was used for setting up the suspension requires decreasing the amount of preload. Increasing the load carried requires adding more preload.

## **ADJUSTING REAR SHOCK ABSORBERS**

Park your motorcycle on the jiffy stand without any luggage or load.

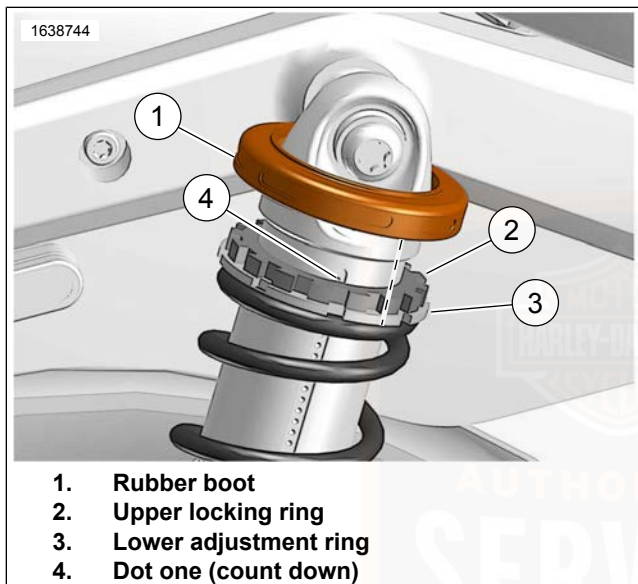
### **Dual Shocks**

#### **Identify the Preload Dot**

##### *NOTE*

*The total of rider weight and passenger plus cargo and accessories cannot exceed the maximum added weight allowed. Refer to Owner Manual > Specifications (Page 31).*





**Figure 16. Preload Adjustment Arrow (Rubber Boot Raised for Clarity)**

1. Add the weight of the rider and riding gear to get the rider weight.
2. Separately, add the weight of the passenger, their riding gear, intended cargo and any accessories.
3. Locate the preload dot number corresponding to the rider, passenger, cargo and accessories calculations. Refer to Table 23.
  - a. Under RIDER WEIGHT, identify the row that includes the total weight of the rider.
  - b. In the row of PASSENGER, CARGO AND ACCESSORIES, identify the total weight column for any passenger, cargo and accessories.
  - c. The number at the intersection of the RIDER WEIGHT row and the PASSENGER, CARGO AND ACCESSORIES column is the recommended preload dot.

**Table 23. Shock Preload**

Shock Preload																											
ADDITIONAL WEIGHT OF PASSENGER, CARGO AND ACCESSORIES																											
LB	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260
KG	0	5	9	14	18	23	27	32	36	41	45	50	54	59	64	68	73	77	82	87	92	97	100	104	109	113	118
RIDER WEIGHT	PRELOAD DOT (BOTH SHOCKS) <sup>(1, 2)</sup>																										
LB	KG																										
150	68	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0
160	73	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.0
170	77	1.5	2.0	2.5	3.0	3.5	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	-
180	82	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	-	-
190	86	2.0	2.5	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.5	13.0	13.5	14.0	-	-	-
200	91	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	-	-	-
210	95	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	11.0	11.5	12.0	12.5	13.0	13.5	14.0	-	-	-	-
220	100	3.0	3.5	4.0	4.5	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	-	-	-	-
230	104	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	-	-	-	-	-	-	-
240	109	3.5	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.5	14.0	-	-	-	-	-	-
250	113	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	-	-	-	-	-	-	-	-
260	118	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	12.0	12.5	13.0	13.5	-	-	-	-	-	-	-	-
270	122	4.5	5.0	5.5	6.0	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	-	-	-	-	-	-	-	-	-	-
280	127	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.5	11.0	11.5	12.0	12.5	13.0	-	-	-	-	-	-	-	-	-	-
290	131	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	-	-	-	-	-	-	-	-	-	-	-	-
300	136	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.5	10.0	10.5	11.0	11.5	12.0	12.5	-	-	-	-	-	-	-	-	-	-	-	-
Note: Do NOT exceed GVWR for any loading condition.																											
(1) Set BOTH left and right shocks to the same preload dot per the above chart.																											
(2) Adjust the Lock Nut (upper) so the top surface is in-line with the target dot.																											

## Shock Adjustment

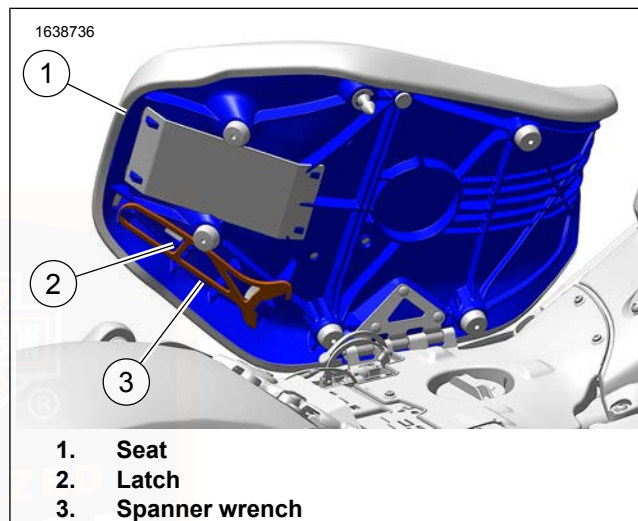
### ⚠ WARNING

**Adjust both shock absorbers equally. Improper adjustment can adversely affect stability and handling, which could result in death or serious injury. (00036b)**

### NOTE

*To prevent damage to the adjustment and locking rings, do not use any other wrench than the one supplied with your motorcycle.*

1. Lift seat. See Service Procedures > Seat (Page 183).
2. See Figure 17. Lift the latch (2) and slide the spanner wrench (3) from the retention pocket.
3. See Figure 16. Raise rubber boot (1) above upper locking ring (2).



**Figure 17. Spanner Wrench Retention Pocket**

### NOTICE

**Avoid shock damage. Make sure shock threads are clean and free of debris before loosening or tightening shock adjusting nuts. (00646b)**

4. If necessary, clean the threads on the shock absorber.
5. See Figure 18. Use the spanner wrench to turn the upper locking ring counterclockwise (1) to unlock the ring.

Before Riding 55

**NOTE**

*See Figure 16. Rotate the lower adjustment ring (3) clockwise to increase preload. Rotate the lower adjustment ring counterclockwise to decrease preload.*

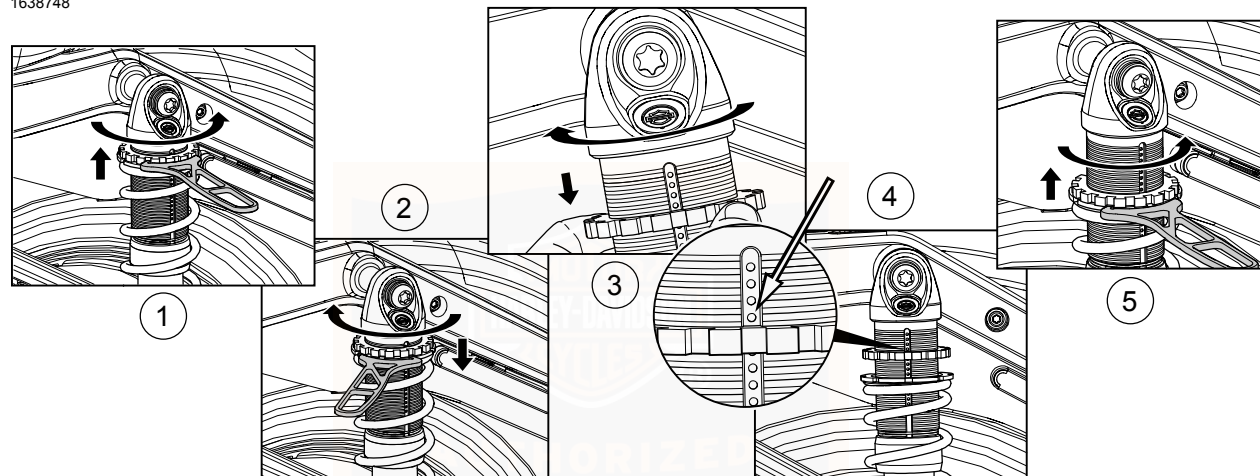
6. See Figure 18. Use the spanner wrench to turn (2) the lower adjustment ring below the recommended dot.

**NOTE**

*See Figure 16. Count down from the top dot (4) on the shock dot scale to identify the recommended preload dot.*

7. See Figure 18. Rotate the upper locking ring to align with the recommended preload dot (3).

8. Cover one-half the recommended preload dot (4) with the upper locking ring.
9. Use the wrench to hand tighten the lower adjustment ring against the upper locking ring (5).
10. See Figure 16. Install rubber boot (1) in position.
11. Adjust the opposite shock absorber to the same preload dot.
12. Return the spanner wrench to the retention pocket under the seat.
13. Lower and latch seat. See Service Procedures > Seat (Page 183).



1. Loosen upper locking ring
2. Turn lower adjustment ring below recommended dot
3. Rotate upper locking ring to dot
4. Align upper locking ring to dot
5. Tighten lower adjustment ring

Figure 18. Preload Adjustment

## Mono Shock

### General

Damping is set at the factory for the average solo rider under normal riding conditions. The rider may make adjustments to compensate for load, individual riding styles and varying road conditions.

Evaluating and changing the rebound and compression damping is a subjective process with many variables and should be approached carefully.

#### NOTICE

**Compression and rebound adjusting valves may be damaged if too much force is used at either end of the adjustment range. (00237a)**

#### NOTE

*Do not force adjusters beyond mechanical stops.*

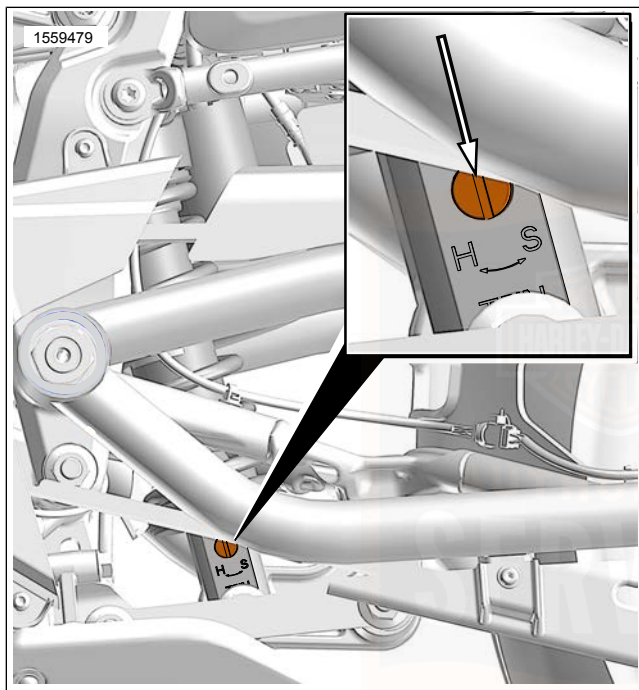
## Rebound and Compression Damping

### Rebound Damping Adjustment

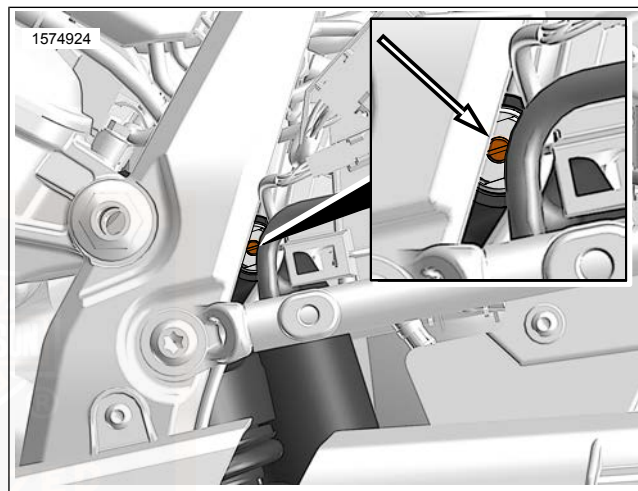
#### NOTE

**Rebound** adjuster is marked as **TEN** (Tension) on the lower left side of the shock absorber.

1. See Figure 19. Use a flat blade screwdriver to turn rebound adjuster clockwise in the H (hard) direction until it stops. This is the maximum rebound damping setting.
2. Turn rebound adjuster counter-clockwise in the S (soft) direction the recommended number of turns. Refer to Table 26.



**Figure 19. Rebound Adjuster**



**Figure 20. Compression Adjuster**

### **Compression Damping Adjustment**

1. Remove left side cover. See Service Procedures > Side Covers (Page 173).

#### **NOTE**

**Compression** adjuster is on upper left side of shock absorber.

- See Figure 20. Use a flat blade screwdriver to turn compression adjuster clockwise in the H (hard) direction until it stops. This is the maximum compression damping setting.
- Turn compression adjuster counter-clockwise in the S (soft) direction the recommended number of turns. Refer to Table 26.
- Install left side cover. See Service Procedures > Side Covers (Page 173).

**Table 24. Rear Preload Suspension Settings**

RIDER WEIGHT	REAR SHOCK
kg/lb	Clicks from Minimum <sup>(1)</sup>
<150 lb (68 kg)	0
150–170 lb (68–77 kg)	0
170–190 lb (77–86 kg)	0
190–210 lb (86–95 kg)	11
210–230 lb (95–104 kg)	22
230–250 lb (104–113 kg)	33
250–270 lb (113–122 kg)	Maximum <sup>(2)</sup>
270–290 lb (122–132 kg)	
290 lb (132 kg) to GVWR	

(1) Minimum is defined as fully turned out counter-clockwise.

(2) Maximum is defined as fully turned in clockwise.

**Table 25. Rear Preload with Passenger or Cargo**

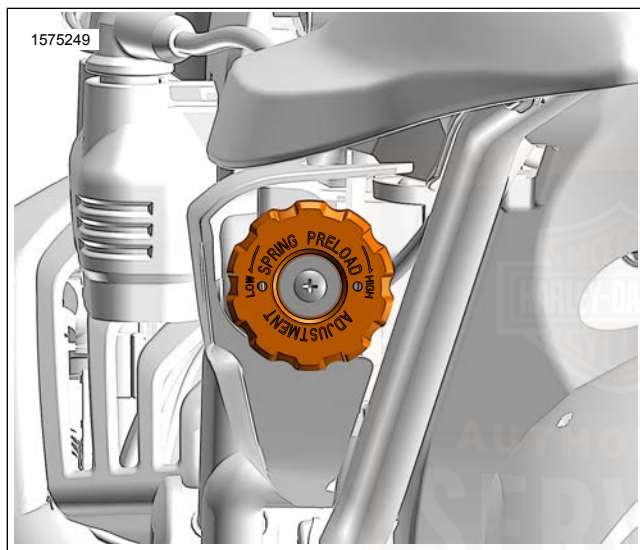
PASSENGER or CARGO	REAR SHOCK
kg/lb	Additional Clicks <sup>(1)</sup>
0–50 lb (0–23 kg)	+22 or maximum <sup>(2)</sup>
50–100 lb (23–45 kg)	Maximum
100–150 lb (45–68 kg)	
150 lb (68 kg) to GVWR	
(1) Add to preload setting for passenger or cargo weight.	
(2) Maximum is defined as fully turned in clockwise.	

**Table 26. Rear Fork Compression and Rebound**

<b>RIDE SETTING</b>	<b>REAR SHOCK<sup>(1)</sup></b>	
	<b>Compression</b>	<b>Rebound</b>
Standard	2.75	1.75
Comfort	2.75	3
Sport	1.5	1.5
<i>(1) Damping adjuster settings are done by turning adjuster clockwise until it stops at the maximum setting, then counting the turns counter-clockwise to the desired setting.</i>		



## Preload Adjustment



**Figure 21. Preload Adjuster**

1. See Figure 21. Rotate the preload adjuster knob clockwise in the HIGH direction to increase preload setting, or counterclockwise to decrease preload setting until desired setting is reached.

2. Calculate rear preload settings.
  - a. **Rider:** Refer to Table 24 for preload clicks required for rider. Note clicks required.
  - b. **Passenger or cargo:** Refer to Table 25 for additional preload clicks required for passenger or cargo. Note clicks required.
  - c. Add rider and passenger/cargo preload amounts together to get final adjustment setting.
3. See Figure 21. Adjust preload adjuster knob to the desired number of clicks.

## ADJUSTING FRONT SHOCK ABSORBERS

### Front Fork

#### General

**Models equipped with adjustable front forks have adjusters at the top of each fork.** See Figure 22.

Damping is set at the factory for the average solo rider under normal riding conditions. The rider may make adjustments to compensate for load, individual riding styles and varying road conditions.

Evaluating and changing the rebound and compression damping is a subjective process with many variables and should be approached carefully.

#### NOTICE

**Compression and rebound adjusting valves may be damaged if too much force is used at either end of the adjustment range. (00237a)**

#### NOTE

*Do not force adjusters beyond mechanical stops.*

## Compression and Rebound Damping

### Compression Damping Adjustment

See Figure 22. The compression adjuster (2) screw is located on the top of the right side fork tube.

1. Turn compression adjuster screw clockwise until it stops. This is the maximum compression damping setting.
2. Turn compression adjuster screw counter-clockwise the recommended number of turns. Refer to Table 29.

## Rebound Damping Adjustment

See Figure 22. The rebound adjuster (3) screw is located on the top of the left side fork tube.

1. Turn rebound adjuster screw clockwise until it stops. This is the maximum rebound damping setting.
2. Turn rebound adjuster screw counter-clockwise the recommended number of turns. Refer to Table 29.

## Spring Preload

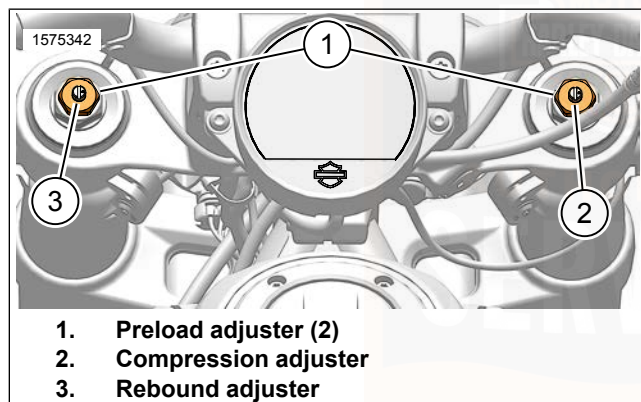
#### NOTE

*Make identical preload adjustments to left and right forks.*

See Figure 22. The preload adjuster (1) is located on the top of each fork tube.

1. Turn preload adjuster counter-clockwise until it stops. This is the minimum preload setting.
2. Calculate front preload settings.
  - a. **Rider:** Refer to Table 27 for required rider preload adjustment. Note required adjustment.

- b. **Passenger or cargo:** Refer to Table 28 for required passenger and cargo preload. Note required adjustment.
  - c. Add rider and passenger/cargo preload amounts together to get final adjustment setting.
3. Adjust front preload settings. Turn preload adjuster clockwise the calculated number of turns.



**Figure 22. Front Suspension Adjusters**

**Table 27. Front Preload Suspension Settings**

RIDER WEIGHT	FRONT FORKS
kg/lb	Turns from Minimum <sup>(1)</sup>
<150 lb (68 kg)	0
150–170 lb (68–77 kg)	2
170–190 lb (77–86 kg)	5
190–210 lb (86–95 kg)	9
210–230 lb (95–104 kg)	12
230–250 lb (104–113 kg)	15
250–270 lb (113–122 kg)	15
270–290 lb (122–132 kg)	15
290 lb (132 kg) to GVWR	15

*(1) Number of clockwise turns from minimum preload setting.*

**Table 28. Front Preload with Passenger or Cargo**

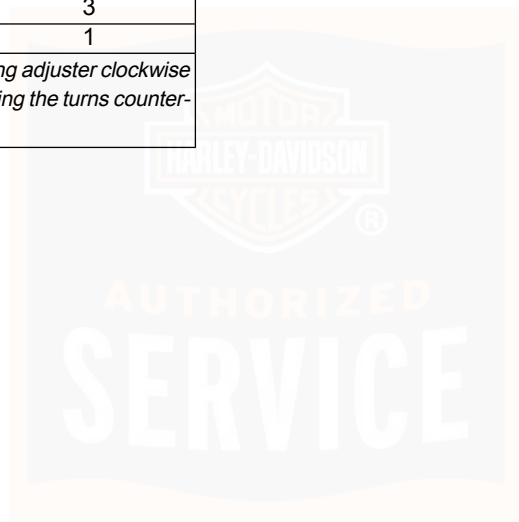
PASSENGER or CARGO	FRONT FORKS
kg/lb	Additional Turns <sup>(1)</sup>
0–50 lb (0–23 kg)	+0
50–100 lb (23–45 kg)	+0
100–150 lb (45–68 kg)	+0
150 lb (68 kg) to GVWR	+0

*(1) Add to the turns required for rider weight.*

**Table 29. Front Forks Compression and Rebound**

RIDE SETTING	FRONT FORKS <sup>(1)</sup>	
	Compression (right fork)	Rebound (left fork)
Standard	2	2
Comfort	3	3
Sport	1	1

*(1) Damping adjuster settings are done by turning adjuster clockwise until it stops at the maximum setting, then counting the turns counter-clockwise to the desired setting.*



## SECURITY SYSTEM

### Components

The security system consists of a control module, a hands-free antenna mounted on the motorcycle and a hands-free fob carried by the rider.

See SECURITY SYSTEM > Arming and Disarming (Page 70).

### Options

See a Harley-Davidson dealer or [www.harley-davidson.com](http://www.harley-davidson.com) for security system options.

## SECURITY SYSTEM FOB

### Assigning Fob

See Figure 23. Key fobs are electronically assigned to the security system by a Harley-Davidson dealer. Only two fobs can be assigned at any one time.

Purchase replacement fobs from a Harley-Davidson dealer. The fobs can only be assigned to an individual motorcycle by a trained Harley-Davidson technician.



**Figure 23. Security System Fob**

#### NOTE

- The module arms only if the fob has been assigned by a Harley-Davidson dealer and a Personal Identification Number (PIN) has been entered in the system. Record the PIN on the Personal Information page in the front of this Owner's Manual.

- If the fob is misplaced or fails, the rider can refer to the *Personal Information* page in the front of this Owner's Manual and use the PIN to manually disarm the system. See *SECURITY SYSTEM > Arming and Disarming* (Page 70) and *SECURITY SYSTEM > Troubleshooting* (Page 75).
- The rider can change the PIN at any time. See *SECURITY SYSTEM > Personal Identification Number (PIN)* (Page 68).

## Fob Battery

### ⚠ WARNING



**CONTAINS BUTTON OR COIN CELL BATTERY. KEEP OUT OF REACH OF CHILDREN.**

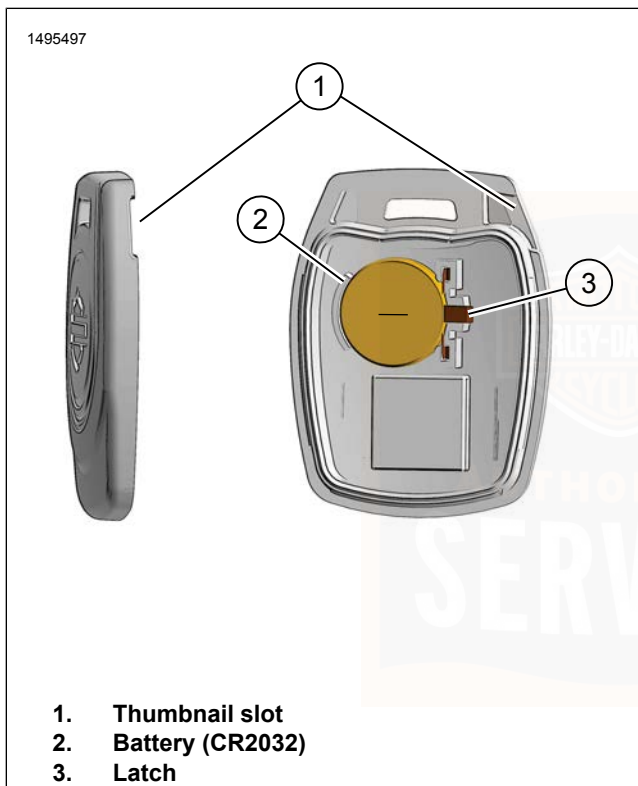
**Ingestion can result in death or serious injury. Choking, chemical burns and perforation of soft tissue may result. Severe burns can occur within 2 hours of ingestion or placement in any part of the body. Seek medical attention immediately. (13105b)**

Replace the fob battery every year.

## 66 SECURITY SYSTEM

### NOTE

- The reusable label found on the fob packaging lists the serial number of the fob. For reference, affix the label to a blank "NOTES" page in this Owner's Manual.
  - See Figure 24. The serial number of the fob is also found on the inside of the fob.
1. See Figure 24. To open the fob, turn a thin blade in the slot (1).
  2. Remove the battery (2) and discard in accordance with local regulations.
  3. Install a **new** battery (Panasonic CR2032 or equivalent) with the negative side up.
  4. Align the two halves of the fob. Snap the halves together.



**Figure 24. Replace Fob Battery**

## **Riding with a Fob**

- Always carry the fob when riding, loading, fueling, moving, parking or servicing the motorcycle.
- Do not leave the fob attached to the handlebars or store the fob in a luggage compartment. Unintentionally leaving the fob with the motorcycle when it is parked prevents the system from activating the alarm.
- Do not ride with the fob stored in a metal case or with the fob closer than 3 in (76 mm) to a mobile phone, Personal Digital Assistant (PDA), display or other electronic device. Any electromagnetic interference may prevent the fob from disarming the system.
- For added security, always lock the fork. Remove the key when parked. If the fob is within range and the motorcycle is unlocked, tampering with the motorcycle will not activate the alarm.

## **Riding without a Fob**

If the motorcycle is ridden without the fob in acceptable proximity, the IM displays "NO FOB." To restart a motorcycle without a fob, disarm the security system with the PIN.

## PERSONAL IDENTIFICATION NUMBER (PIN)

The PIN is a number that can be used to disarm the security system. Use the PIN in case the assigned fob is misplaced, fails or if the fob cannot communicate with the motorcycle because of electromagnetic interference.

A PIN is a five-digit number (1-9).

### Changing the PIN

The rider can change the PIN at any time.

- Ignition must be ON
- Fob must be present
- Can select numbers between 1-9

#### Access PIN change screen:

1. **Models with Infotainment:** Navigate dashboard menu:

- a. **Settings > General > Change Security PIN**
- b. Click OK/enter.
- c. See Figure 25. The PIN screen will display.

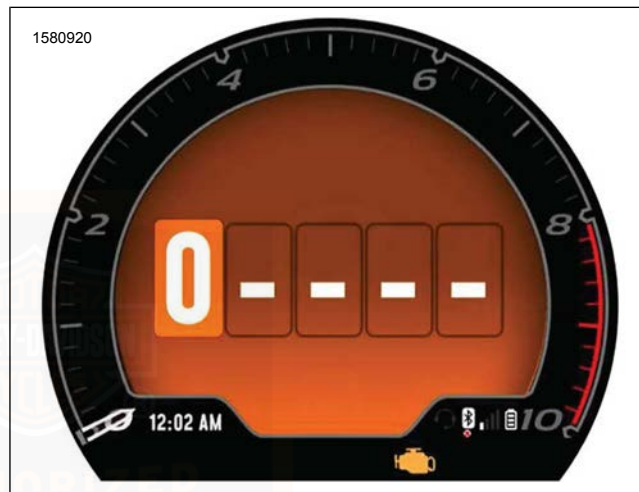


Figure 25. PIN Entry Screen (With Infotainment)

1. **Models without Infotainment:**

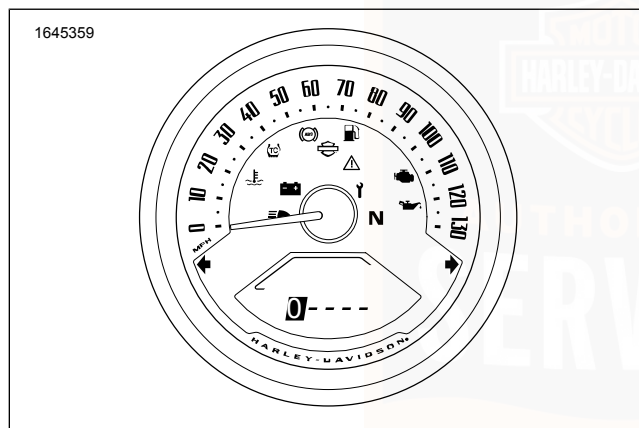
- a. With an assigned fob present, turn the OFF/RUN switch to RUN.
- b. Cycle the OFF/RUN switch twice: OFF - RUN - OFF - RUN.
- c. Press left turn signal switch 2 times.



- d. Press right turn signal switch 1 time and release. Turn signals will flash 3 times. See Figure 26. Current PIN will appear in odometer display. The first digit will be flashing.

**NOTE**

*The zero is displayed and is only a default number. Zero cannot be part of the PIN.*



**Figure 26. PIN Entry Screen (Without Infotainment)**

## Hand Control Entry

1. See Figure 25 and Figure 26. Select the first digit of the PIN.
  - a. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
2. See Figure 27 and Figure 28. Select the next digit.
  - a. Push the right turn signal to move cursor to the right.
  - b. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
3. Repeat step 2 until all five digits are filled in with the desired PIN.
4. Cycle the ignition to save PIN.

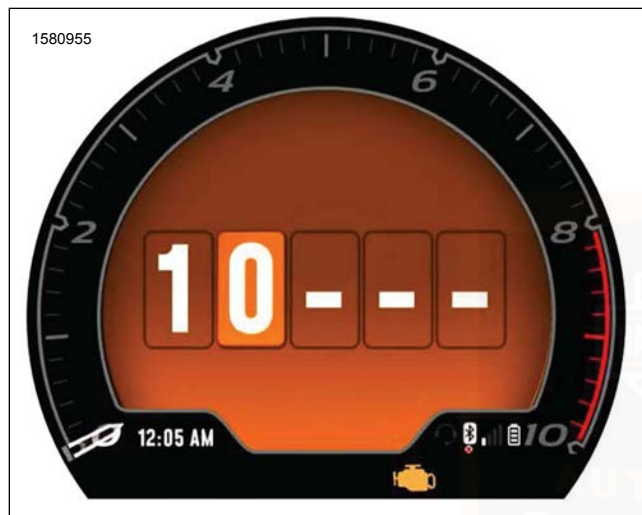


Figure 27. Moving Cursor to Next Digit (With Infotainment)

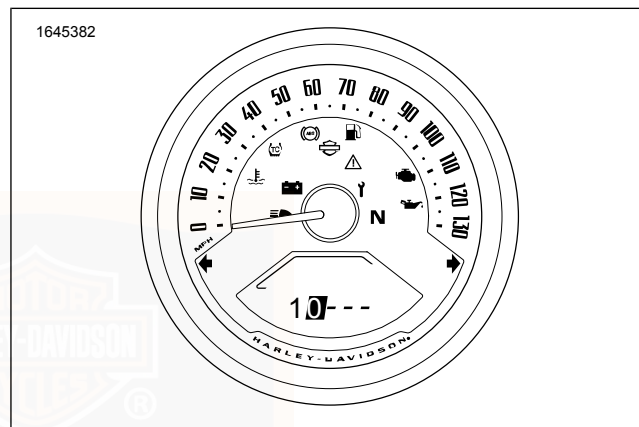


Figure 28. Moving Cursor to Next Digit (Without Infotainment)

## ARMING AND DISARMING

### Arming

When the motorcycle is parked and the OFF/RUN switch is moved to OFF, the security system arms automatically within 5 seconds if no motion is detected. Even when the fob is present, the system arms.

On arming, the turn signals flash twice and the siren chirps twice if the siren is in the chirp mode (if equipped with a siren).

#### NOTE

**International models:** The system must be in the chirp mode for the siren to chirp on arming or disarming (if equipped with a siren). See SECURITY SYSTEM > Siren Chirp Mode (Confirmation) (Page 73).

## Disarming

With the fob present, the rider may ride or move the motorcycle for parking, storage or service without setting off the alarm. Disarming is automatic as long as the fob is within range.

**Fob:** An armed security system is automatically disarmed when the fob is present and the motorcycle is moved or the OFF/RUN switch is moved to RUN.

The range of the fob is approximately 5 ft (1.5 m).

When the system disarms, the siren chirps once when the siren is in chirp mode (if equipped with a siren) and the turn signals flash once.

**Personal Identification Number (PIN):** If the fob is misplaced or if the present fob fails to communicate, the system can be disarmed with the PIN.

## Disarming with a PIN

Disarm the security system manually using the PIN if the fob is lost, the fob battery is discharged or if where you parked there is a strong electromagnetic interference.

Do not turn handlebars, straddle seat or lift motorcycle off the jiffy stand. During a PIN disarm, if the security system detects motorcycle motion the system will activate the alarm.

The PIN screen will automatically show up on the IM when the fob is not present and the the Off/Run switch is set to Run.

#### NOTE

- If a mistake is made while entering PIN, move the OFF/RUN switch to OFF before entering the last digit and then start the procedure from the beginning.
- If the procedure fails to disarm the security system, wait 2 minutes before attempting another PIN disarm.
- The security system remains disarmed until the OFF/RUN switch is moved to OFF.
- At any time during a PIN disarm if the fob is brought within range, the security system disarms as the module receives the coded signal from the fob.

## Hand Control Entry

1. See Figure 25 and Figure 26. Select the first digit of the PIN.
  - a. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
2. See Figure 27 and Figure 28. Select the next digit.
  - a. Push the right turn signal to move cursor to the right.
  - b. Push the left turn signal to scroll through the numbers (1-9) until the desired digit appears.
3. Repeat step 2 until all five-digits are filled in with the desired PIN.
4. Push right turn signal to enter PIN.

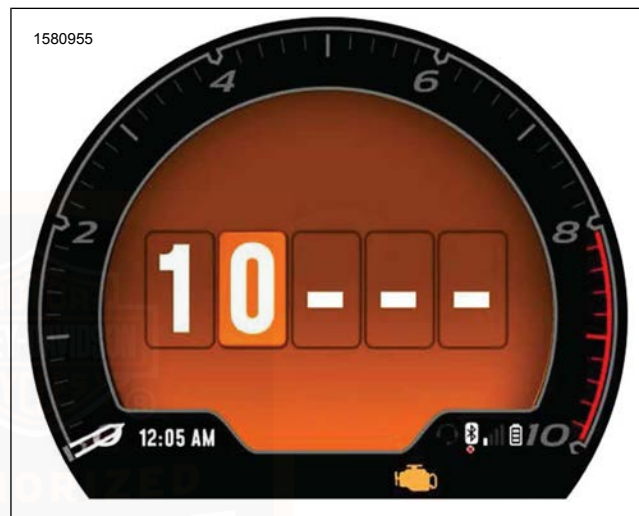


Figure 29. Moving Cursor to Next Digit

## ALARM

### Warnings

Once armed, if the motorcycle is moved or lifted up off of its jiffy stand and the fob is not present, the alarm will warn the operator with three alternate flashes of the turn signals and a chirp of the siren.

Within 4 seconds, if the motorcycle is back on its jiffy stand and no further motion is detected, the system will remain armed without activating the alarm.

If the motorcycle motion continues, the system will issue a second warning 4 seconds after the first.

#### NOTE

*During warnings and alarms, the starter motor and the ignition circuits remain disabled.*

## Alarm Activation

If the security system is still detecting motion after a second warning, the system will activate the alarm.

When activated, the security system will:

- Alternately flash the four turn signals.
- Sound the siren (if equipped).

**Duration:** The alarm will stop within 30 seconds and if no motion is detected, the alarm will not restart.

However, if motorcycle motion continues the system will repeat the 30 seconds alarm and recheck for motion. The alarm will repeat this 30 seconds alarm cycle for 5 minutes (10 cycles) or until the alarm is deactivated.

## Alarm Deactivation

**Key fob:** Bring the fob to the motorcycle. After the module identifies that the fob is present, the system will terminate the alarm.

**PIN entry:** Enter the PIN to deactivate the alarm. If an error is made while entering the PIN, wait until the alarm is between cycles to enter the PIN.

## SIREN CHIRP MODE (CONFIRMATION)

Vehicles with optional siren chirp upon arming and disarming.

The siren sounds two chirps when arming, and a single chirp when disarming.

The siren provides warning chirps and sounds the alarm if the motorcycle is moved without the fob present.

## TRANSPORT MODE

It is possible to arm the security system without enabling the motion detector for one ignition cycle. The motorcycle can be moved in an armed state. The motorcycle cannot be turned on or started while in transport mode until the fob is present.

#### NOTE

*When transporting, ensure jiffy stand is fully retracted to prevent damage to vehicle and powertrain components.*

## To Enter Transport Mode

1. With security fob present, set the OFF/RUN switch to RUN.
2. Simultaneously press both the left turn signal switch and the flash to pass button for 10 seconds.
3. While still holding the switch/button, turn ignition OFF.
4. The IM will display transport mode activated.

## To Exit Transport Mode

With the security fob present, set the OFF/RUN switch to RUN to disarm the system and exit transport mode.

## STORAGE AND SERVICE DEPARTMENTS

### Long-Term Parking

To maintain arming, store the fob beyond the range of the antenna. The antenna range is approximately 5 ft (1.5 m). Have the fob present before moving parked motorcycle.

If the motorcycle will not be operated for several months, such as during the winter season, see After Riding > Storing Motorcycle (Page 138).

## Service Departments

When the motorcycle is left at a Harley-Davidson dealer, there are two options:

1. Leave an assigned fob with the dealer.
2. To maintain possession of the fob, ask the dealer to disable the system for service (service mode) before leaving the dealership. Once service mode is active, the vehicle can be operated without an assigned fob present. To maintain the service mode, the assigned fobs must be kept out of range. If the fob appears in range, the service mode is cancelled.

## DISCONNECTING POWER

### All Models

When disconnecting the battery or removing the main fuse, perform the following steps.

1. Verify that the fob is present.
2. Set the OFF/RUN switch to RUN.
3. Pull the main fuse from its holder.
4. Disconnect the battery if needed.

### NOTE

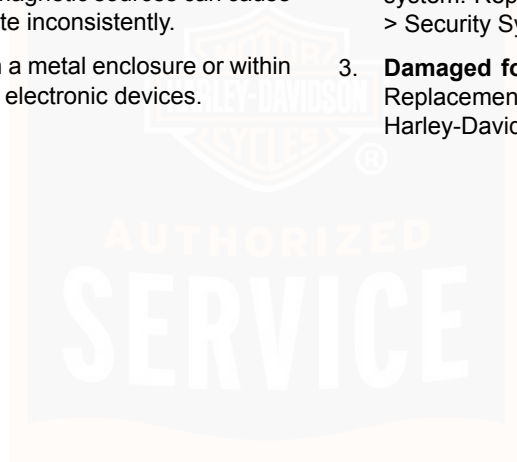
*Set the OFF/RUN switch back to OFF before installing main fuse.*

# TROUBLESHOOTING

## Fob

If the security system continues to actuate warnings and alarms with the fob present, check for:

1. **Electromagnetic interference:** Other electronic devices, power lines, or other electromagnetic sources can cause the security system to operate inconsistently.
  - a. Verify that the fob is not in a metal enclosure or within 3 in (76 mm) of any other electronic devices.
2. **Discharged fob battery:** Use the PIN to disarm the system. Replace the battery. See SECURITY SYSTEM > Security System Fob (Page 65).
3. **Damaged fob:** Use the PIN to disarm the motorcycle. Replacement fobs are available for purchase from a Harley-Davidson dealer.



## NOTES

---





## KEYLESS IGNITION

### ⚠ WARNING

**The automatic-on headlamp feature provides increased visibility of the rider to other motorists. Be sure headlamp is on at all times. Poor visibility of rider to other motorists can result in death or serious injury. (00030b)**

### ⚠ WARNING

**Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)**

A motorcycle with a keyless ignition does not require a key for operation. Instead, an assigned security fob must be present or the PIN must be used before the motorcycle can be started.

The key supplied with the motorcycle is for the fork lock and seat latch. See Operation > Controls, Instruments and Switches (Page 78).

### Ignition Mode

With security fob present, set the OFF/RUN switch to RUN. The lights and instruments become operational and the motor can be started. To disarm the security system using the PIN, see SECURITY SYSTEM > Arming and Disarming (Page 70).

The motorcycle remains on (or the engine continues running) until the OFF/RUN switch is set to OFF. Taking the security fob out of range will not shut down the engine or turn off the motorcycle after it is turned on. However, the IM displays a NO FOB message when the motorcycle begins moving without the fob present.

### NOTE

*With the OFF/RUN switch in RUN, the system will turn off after 15 minutes of inactivity.*

When parked, set the OFF/RUN switch to OFF and take the security fob from the motorcycle to prevent theft or startup. With the motorcycle turned off and the security fob out of range, the starter, ignition system and OFF/RUN switch remain disabled, immobilizing the motorcycle.

### Accessory Mode

See Operation > Left Hand Control Switches (Page 94). With the security fob present, press and hold the TRIP switch (6). The instruments and accessory circuit are powered. The headlamp (high and low beam) and turn signal lamps remain off. While in accessory mode:

- The IM displays the odometer functions.
- Power is supplied to the Universal Serial Bus (USB) port and data transfer is enabled.

- The headlamp halo illuminates.
- The headlamp can be activated by pressing the headlamp flash to pass switch.
- The stop lamps can be operated.

To turn off accessory mode, press and hold the TRIP switch.

Do not leave the motorcycle in accessory mode for an extended period. This action can discharge the battery. If the vehicle is left in accessory mode for 2 hours, the vehicle shuts off to prevent complete battery discharge. To resume accessory mode, press and hold the TRIP switch.

## CONTROLS, INSTRUMENTS AND SWITCHES

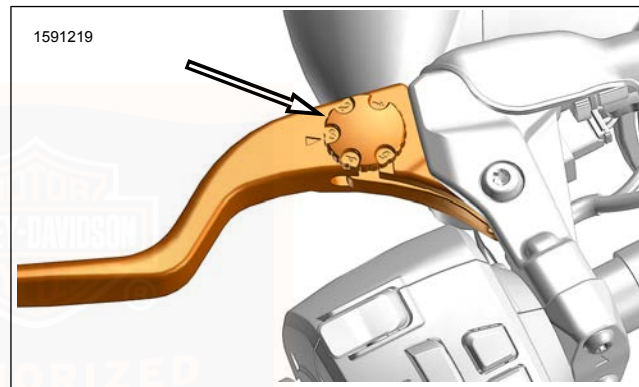
### Clutch Hand Lever

#### ⚠ WARNING

**Do not position fingers between hand control lever and handlebar grip. Improper hand positioning can impair control lever operation and cause loss of vehicle control, which could result in death or serious injury. (00032a)**

See Figure 4 or Figure 7. The clutch hand lever is operated with the fingers of the left hand. See Operation > Shifting Gears (Page 124).

See Figure 30. The distance between the clutch lever and hand grip can be adjusted by rotating the clutch lever adjustment dial.



**Figure 30. Clutch Lever Adjustment Dial (Typical)**

### Gear Shift Lever

See Figure 6 or Figure 9. The gear shift lever is operated with the left foot. Neutral is found between first and second gear in the six speed shift pattern. See Operation > Shifting Gears (Page 124).

## Left-Hand Control Module

See Figure 4 or Figure 7. Operate the switches on the left hand control module with the thumb of the left hand. See Operation > Left Hand Control Switches (Page 94).

## Right-Hand Control Module

See Figure 4 or Figure 7. Operate the switches on the right hand control module with the thumb of the right hand. See Operation > Right Hand Control Switches (Page 100).

## Instrument Module

See Figure 4 or Figure 7. The IM displays vehicle instrumentation including speedometer, odometer, and telltales. See Operation > Instruments (Page 81).

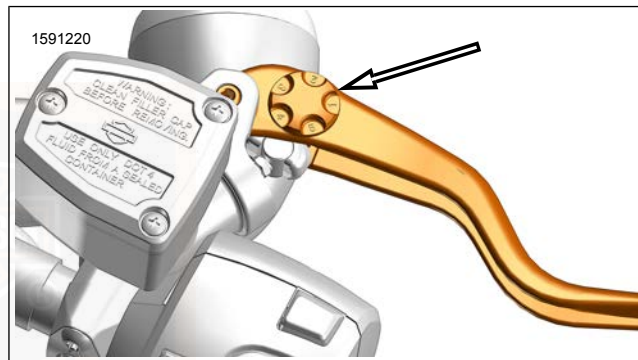
## Brakes

### ⚠ WARNING

**Do not position fingers between hand control lever and handlebar grip. Improper hand positioning can impair control lever operation and cause loss of vehicle control, which could result in death or serious injury. (00032a)**

**Front brake lever:** See Figure 4 or Figure 7. The front brake lever controls the front brake. Operate the hand lever with the fingers of the right hand.

See Figure 31. The distance between the brake lever and hand grip can be adjusted by rotating the brake lever adjustment dial.



**Figure 31. Brake Lever Adjustment Dial (Typical)**

**Rear brake pedal:** See Figure 5 or Figure 8. The rear brake pedal activates the rear wheel brake.

### ⚠ WARNING

**Do not apply brake strongly enough to lock the wheel. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00053a)**

Apply brakes evenly to prevent wheels from locking up. A balance between rear and front brake is best.

## Throttle Twist Grip

**Accelerate:** See Figure 4 or Figure 7. Slowly twist throttle twist grip backward (toward rear of motorcycle) to increase speed.

**Decelerate:** Slowly twist throttle control grip forward (toward the front) to decrease speed.

## OFF/RUN Switch

### NOTE

*The headlamp and tail lamps operate when the OFF/RUN switch is in the RUN position.*

See Figure 41 and Figure 43. To start the engine, see Operation > Starting the Engine (Page 115).

## Fork Lock

### ▲ WARNING

**Do not operate vehicle with forks locked. Locking the forks restricts the vehicle's turning ability, which could result in death or serious injury. (00035a)**

### NOTICE

**Protect your vehicle against theft. Failure to lock the motorcycle after parking could result in theft and/or equipment damage. (00151b)**

See Figure 32. The fork lock is located in the triple clamp on the right side and is locked with the key.

Using the fork lock immediately after parking your motorcycle will discourage unauthorized use or theft.

1. Turn fork to full left position.
2. Insert key into fork lock.
3. Turn key to right position (clockwise).
4. Remove key.
5. To unlock fork, insert key into fork lock and turn to the left position (counter-clockwise). Remove lock key.
6. Check steering for proper operation by turning the handlebars through the full operating range. Handlebars should turn smoothly without binding.

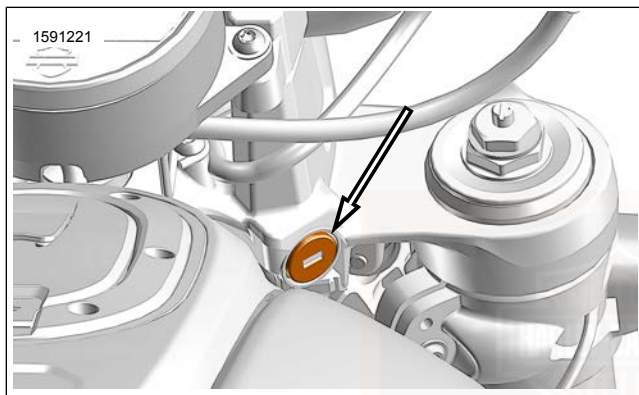


Figure 32. Fork Lock

## INSTRUMENTS

### NOTICE

**There are no serviceable parts inside the unit; leave all servicing to qualified service personnel. Disassembly of the unit could result in equipment damage and/or equipment malfunction. (00172a)**

## Updating Software

1. Check software version.
  - a. Refer to Operation > Infotainment (If Equipped) (Page 105). Navigate to Settings> Software> Software Information. This menu will show the current software version on the IM.
  - b. Check for latest software version. See website: [www.h-d.com/infotainment-support](http://www.h-d.com/infotainment-support).
2. Update software.
  - a. Download the latest software version to Universal Serial Bus Type-C (USB-C) device. See website: [www.h-d.com/infotainment-support](http://www.h-d.com/infotainment-support).
  - b. Unzip the downloaded file to extract the gpg file. The gpg file must be at the root directory of your USB-C drive in order for it to be detected by the IM. Only one gpg file should be present at the root directory level.
  - c. See Figure 47. Connect USB-C drive to motorcycle.
  - d. Navigate to Settings> Software> Infotainment SW Update.

- e. Verify correct update is available.
  - f. Load update.
  - g. Allow update to complete.
  - h. Remove USB-C drive.
3. Return to Software Information to verify correct version has been loaded.

## Models with Infotainment

### Fuel Gauge

See Figure 33. The fuel gauge indicates the approximate amount of fuel in the fuel tank.

### Speedometer

#### ⚠ WARNING

**Travel at speeds appropriate for road and conditions and never travel faster than posted speed limit. Excessive speed can cause loss of vehicle control, which could result in death or serious injury. (00008a)**

See Figure 33. The speedometer registers Miles Per Hour (mph) (U.S. models default) and Kilometers Per Hour (km/h)

(international models default). The IM can be configured to register either mph or km/h through the settings menu.

### Tachometer

See Figure 33. The tachometer measures the engine speed in revolutions per minute (rpm x 1000).

### Clock

See Figure 33. The clock displays current time in 12/24 hour format. The settings menu is used to set time and select 12 or 24 hour format.

### Odometer display

Pressing the trip button with the OFF/RUN switch in either position activates the odometer reading.

See Figure 33. The odometer display provides the following selectable displays:

- Odometer
- Trip odometer A
- Trip odometer B
- Range
- Temperature

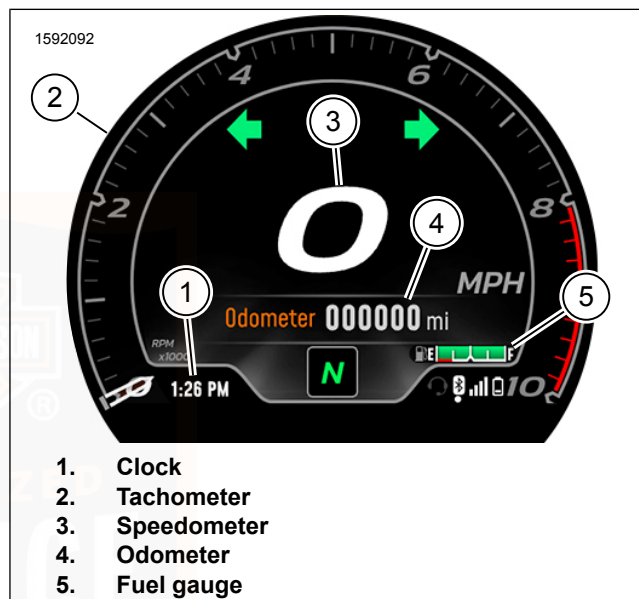
Press and release the trip button to cycle through the displays.

To check trip mileage or to reset trip odometers, the OFF/RUN switch must be in the RUN position. Press and release the trip button until the desired trip odometer is displayed.

To reset or zero trip odometers, have desired (A or B) odometer displayed. Press the trip button and hold for approximately one second. The trip odometer resets to zero.

The fuel range display shows the approximate mileage available with the amount of fuel left in the fuel tank. With OFF/RUN switch in the RUN position, press the trip button until range is displayed.

The temperature display shows ambient temperature. With OFF/RUN switch in the RUN position, press the trip button until temperature is displayed.



**Figure 33. Instruments: Dashboard Display (With Infotainment)**

## Models Without Infotainment

### Fuel Gauge

See Figure 34. The fuel gauge indicates the approximate amount of fuel in the fuel tank.

### Speedometer

#### ⚠ WARNING

**Travel at speeds appropriate for road and conditions and never travel faster than posted speed limit. Excessive speed can cause loss of vehicle control, which could result in death or serious injury. (00008a)**

See Figure 34. The IM registers mph (U.S. models) and km/h (international models).

### Tachometer

See Figure 34. Press and release the trip switch to cycle through the odometer window displays. The tachometer shows the engine speed in revolutions per minute (rpm).

### Clock

See Figure 34. The clock displays current time in 12/24 hour format. Press and hold trip button with clock displayed to set time and select 12 or 24 hour format. When setting clock,

press trip button to cycle through selections, then hold trip button to make selection.

### Gear Indicator

See Figure 34. The gear indicator shows the currently selected gear (1-6).

### Odometer display

Pressing the trip button with the OFF/RUN switch in either position activates the odometer reading. The odometer can also be checked in the accessory mode.

See Figure 34. The odometer display provides the following selectable displays:

- Odometer
- Trip odometer A
- Trip odometer B
- Range
- Clock
- Tachometer

Press and release the trip button to cycle through the displays.

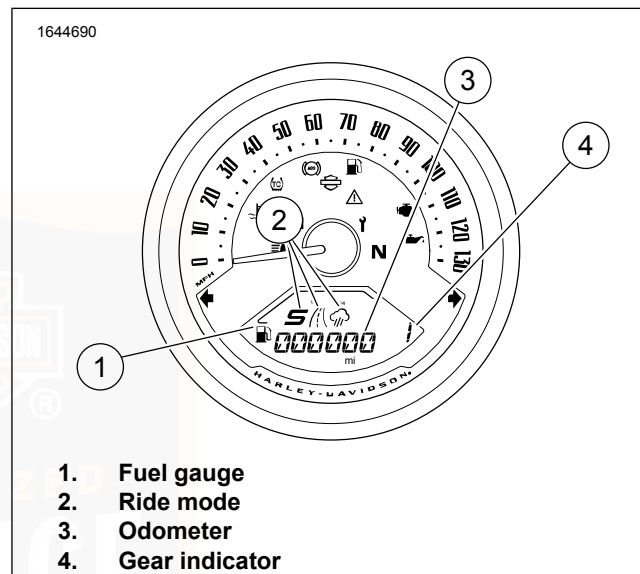
To check trip mileage or to reset trip odometers, the OFF/RUN switch must be in the RUN position or in accessory mode.



Press and release the trip button until the desired trip odometer is displayed.

To reset or zero trip odometers, have desired (A or B) odometer displayed. Press the trip button and hold for approximately one second. The trip odometer resets to zero.

The fuel range display shows the approximate mileage available with the amount of fuel left in the fuel tank. With OFF/RUN switch in the RUN position, press the trip button until range is displayed.



**Figure 34. Instruments: Dashboard Display (Without Infotainment)**

## INDICATORS

### Service Lamps

See Figure 35 or Figure 36. The service lamps indicate the condition of the powertrain/powertrain management system.

**Fault Alert:** The fault alert indicator turns on when the vehicle has detected a fault. See a Harley-Davidson dealer for service.

**Check Engine:** The check engine indicator normally turns on when the ignition is first turned on. During this time, the powertrain management system runs a series of self-diagnostics. If the indicator remains on after startup, see a Harley-Davidson dealer for service.

**Maintenance:** The maintenance indicator turns on when the vehicle has detected the vehicle requires maintenance and/or repair but can still be operated. See a Harley-Davidson dealer for service.

## Battery Fault Indicator

See Figure 35 or Figure 36. The battery fault indicator turns on when overcharging or undercharging of the battery is detected. Refer to Service Procedures > Battery Maintenance (Page 166).

## Coolant Temperature Indicator

### ▲ WARNING

**Do not loosen or remove pressure cap when cooling system is hot. The cooling system is under pressure and hot coolant and steam can escape from pressure cap, which could cause severe burns. Allow motorcycle to cool before servicing the cooling system. (00091c)**

### NOTICE

**If the engine coolant temperature indicator lamp remains lit, always check the coolant level. If the coolant level is normal and the lamp is still lit, stop the engine at once and do not ride further until the trouble is located and the necessary repairs are made. Failure to do so may result in engine damage. (00158a)**

See Figure 35 or Figure 36. The coolant temperature Indicator turns on when the coolant has exceeded threshold temperature.

If coolant level is sufficient and the indicator remains on, see a Harley-Davidson dealer for service.

## Oil Pressure Indicator

### NOTICE

**If the oil pressure indicator lamp remains lit, always check the oil supply first. If the oil supply is normal and the lamp is still lit, stop the engine at once and do not ride further until the trouble is located and the necessary repairs are made. Failure to do so may result in engine damage. (00157a)**

See Figure 35 or Figure 36. The oil pressure indicator turns on when the ignition is turned on. The indicator remains on until the engine is started.

If the indicator is on while the engine is running, sufficient oil is not circulating through the engine.

Check and add engine oil as necessary. Refer to Maintenance and Lubrication > Check Engine Oil Level (Page 142). For other possible causes, Refer to Troubleshooting > Engine (Page 189).

If the engine oil level is sufficient and the lamp remains on, stop the engine immediately. See a Harley-Davidson dealer for service.

## Low Fuel Indicator

See Figure 35 or Figure 36.

**Solid:** The low fuel warning indicator turns on when the fuel in the tank reaches the low fuel level (approximate). See Owner Manual > Specifications (Page 31) for the low fuel level. For fuel range feature, see Operation > Instruments (Page 81).

**Flashing:** If the low fuel lamp flashes continuously or remains on after filling the fuel tank, see a Harley-Davidson dealer.

## Ride Mode Indicator

See Figure 35 or Figure 34. The ride mode Indicator displays the current selected ride mode. See Operation > Ride Modes (Page 110).

## Vehicle Hold Control Indicator (models with)

See Figure 35.

**Solid:** Vehicle Hold Control (VHC) is engaged and maintaining brake pressure.

**Slow flashing:** Indication that brake pressure is being released, or is about to be released automatically. The rider should be prepared to engage the brake manually or drive off

## Heated Hand Grip Indicator (If equipped)

See Figure 35.

Indicates status of heated hand grips.

## Gear Indicator

See Figure 35 or Figure 34. The gear indicator shows the currently selected gear (1-6) and neutral.

## Turn Signal Indicators

See Figure 35 or Figure 36.

**Flashing:** A turn signal is activated. When the 4-way hazard flashers are operating, both turn indicators flash simultaneously.

**Rapid flashing:** A turn signal is not operating. Exercise caution and use hand signals. Replace inoperative components at earliest opportunity.

## Headlamp High Beam Indicator

See Figure 35 or Figure 36. The headlamp high beam indicator is on when the high beam or flash to pass switch is activated.

## Cruise Control Indicator (If equipped)

See Figure 35.

**Off:** Cruise control is not enabled.

**Enabled - speed not set:** Cruise control is enabled, cruising speed is not set. Cruise indicator shown in amber color.

**Enabled - speed set:** Cruising speed is set. Motorcycle speed is maintained by the cruise control system. Cruise indicator shown in green color.

## ABS Indicator

**ABS Indicator:**

See Figure 35 or Figure 36.

### ⚠ WARNING

**If ABS lamp continues flashing at speeds greater than 3 mph (5 km/h) or remains on continuously, the ABS is not operating. The standard brake system is operational, but wheel lock up can occur. Contact a Harley-Davidson Dealer to have ABS repaired. A locked wheel will skid and can cause loss of vehicle control, which could result in death or serious injury. (00361b)**

**Flashing:** The Anti-lock Braking System (ABS) indicator begins flashing when the vehicle is turned on. The flashing indicates that the system is in self-diagnosis mode. It continues to flash until motorcycle speed exceeds 3 mph (5 km/h). ABS is not operational until the lamp turns off.

**Solid:** Continuous illumination indicates an ABS malfunction. The ABS is disabled and the brakes are operating as if they were non-ABS brakes. See a Harley-Davidson dealer for service.

**⚠ WARNING**

**Rapid flashing of the ABS lamp while the fault alert and traction control lamps are lit indicates a potential brake system fault. Move the motorcycle out of traffic applying both front and rear brakes to reduce speed and to stop motorcycle in a safe location. Contact a Harley-Davidson dealer for brake system repair. Operating a motorcycle with an improperly functioning brake system can adversely affect brake performance, which could result in death or serious injury. (11610a)**

**Rapid flashing with solid fault alert and traction control lamps:** This indicates a potential brake system fault. Apply both front and rear brakes to reduce speed and to stop motorcycle. The brake controls could feel stiff when applied. If this occurs, move the motorcycle to a safe location to stop. Service is required to correct the fault before continuing to ride. See a Harley-Davidson dealer for service.

**Table 30. ABS Indicator State**

ABS INDICATOR	STATE
ABS indicator Flashes	START-UP: ABS indicator check.
ABS indicator OFF	NORMAL OPERATION: After vehicle speed > 3 mph (5 km/h).

**Table 30. ABS Indicator State**

ABS INDICATOR	STATE
ABS indicator Continuous	ABS not functioning.
ABS indicator Rapid Flash with Solid Fault Alert and Traction Control indicator	Brake System Fault, Do not ride.

**Tire Pressure/TPMS Fault Indicator (If equipped)**

**⚠ WARNING**

**Be sure tires are properly inflated, balanced, undamaged, and have adequate tread. Inspect your tires regularly and see a Harley-Davidson dealer for replacements. Riding with excessively worn, unbalanced, improperly inflated, overloaded or damaged tires can lead to tire failure and adversely affect stability and handling, which could result in death or serious injury. (00014b)**

See Figure 35. The low tire pressure/Tire Pressure Monitoring System (TPMS) fault indicates when a low tire pressure condition or a TPMS system fault has occurred.

**Flashing (60 seconds, followed by solid lamp):** TPMS fault has been detected. This event can occur for a variety of reasons, including loss of signal from the sensors or sensor battery failure. Tire pressure data may not be available while the lamp is lit. See a Harley-Davidson dealer for service.

**Solid:** The system has detected that one or more tires have low pressure. Safely stop the vehicle and use a tire pressure gauge to check the pressure of each affected tire. Inflate the tires according to specifications in Before Riding > Checking Tire Pressure and Inspecting Tires (Page 44), or as specified on the label on the frame downtube. The indicator will turn off when you begin riding the motorcycle with the correct pressure in the tires. Also refer to Before Riding > Checking Tire Pressure and Inspecting Tires (Page 44) to compensate tire pressures for tires that have recently been ridden.

## Traction Control Indicator

See Figure 35 or Figure 36.

**Solid:** Traction control has been turned off.

**Flashing:** Traction control system (TCS) active intervention. The TCS indicator will flash until vehicle is moving approximately 3 mph (5 km/h).

**Off:** Traction control system is on.

**Solid with fault alert indicator illuminated:** Continuous illumination of the traction control indicator along with the alert indicator illuminated indicates a traction control fault. Traction control may be disabled and the motorcycle may be operating as if traction control is turned off. See a Harley-Davidson dealer for service.

## Bluetooth Indicator (If equipped)

See Figure 35. The bluetooth indicator displays the connection status of a wireless device. When connected to a device the indicator will be white, when no connection is detected the indicator will be grey.

## Bluetooth Application Status Indicator

See Figure 37. The bluetooth application status indicates the following.

- **Solid white:** Connected to application.
- **Empty:** Connected to application and is offline with no data being transferred.
- **Red:** Not connected to application.

## Device Battery Indicator (If equipped)

See Figure 35. Bluetooth connected device battery level.

## Device Signal Indicator (If equipped)

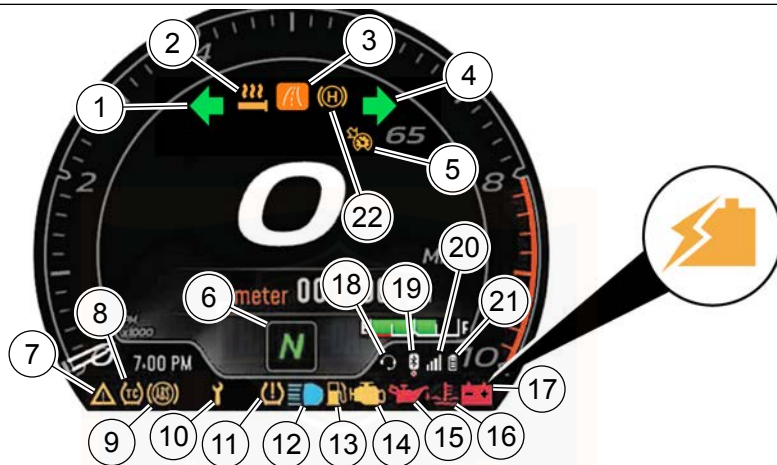
See Figure 35. Bluetooth connected device signal strength.

## Headset Connection Indicator (If equipped)

See Figure 35. The headset indicator displays the connection status of the headset. When connected the indicator will be

white, when no connection is detected the indicator will be grey.

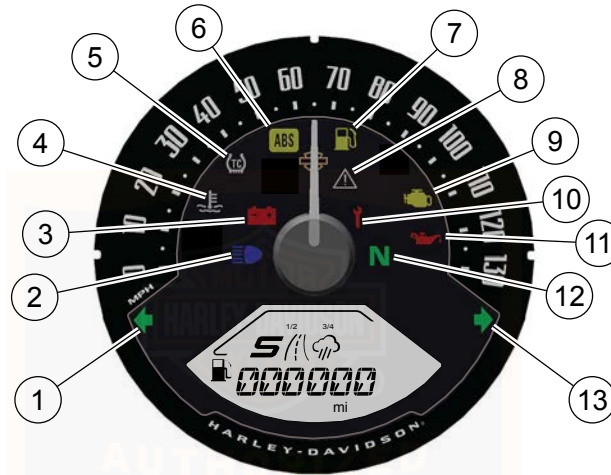




- |                                   |                                 |
|-----------------------------------|---------------------------------|
| 1. Left turn signal               | 12. Headlamp high beam          |
| 2. Heated hand grip (if equipped) | 13. Low fuel                    |
| 3. Ride mode                      | 14. Check engine                |
| 4. Right turn signal              | 15. Oil pressure                |
| 5. Cruise control                 | 16. Coolant temperature         |
| 6. Gear indicator                 | 17. Battery discharge/Load shed |
| 7. Fault alert                    | 18. Headset connection          |
| 8. Traction control               | 19. Bluetooth                   |
| 9. ABS                            | 20. Device signal               |
| 10. Maintenance required          | 21. Device battery              |
| 11. TPMS fault                    | 22. VHC (models with)           |

**Figure 35. Instrument Module Indicators (With Infotainment)**





1. Left turn signal
2. Headlamp high beam
3. Battery discharge
4. Coolant temperature
5. Traction control
6. ABS
7. Low fuel

8. Fault alert
9. Check engine
10. Maintenance required
11. Oil pressure
12. Neutral indicator
13. Right turn signal

**Figure 36. Instrument Module Indicators (Without Infotainment)**

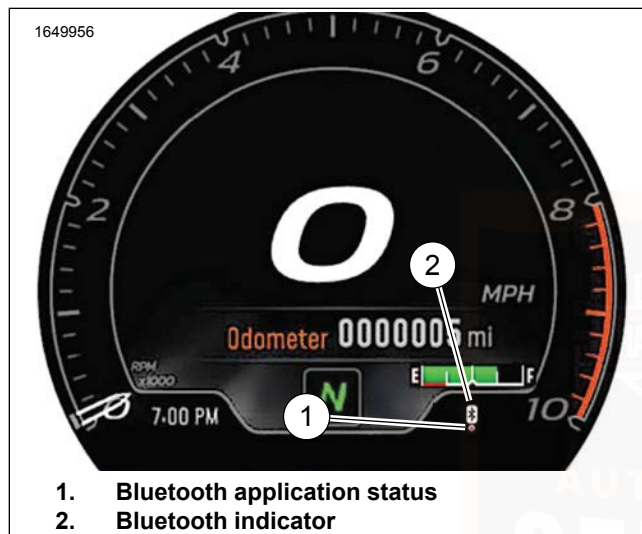


Figure 37. Bluetooth Symbol

## LEFT HAND CONTROL SWITCHES

### Models with Infotainment

#### Headlamp Switch

- **Flash to Pass:** See Figure 38. When the headlamp switch (3) is in the low beam position, press down and release the headlamp switch to use the flash to pass to flash the high beam before passing another vehicle. The high beam indicator on the IM is illuminated as long as the flash to pass button is pressed. When in accessory, press the flash to pass button to activate the headlamp.
- **Low Beam:** See Figure 38. From the high beam position, press the headlamp switch (3) down to activate the low beam.
- **High Beam:** See Figure 38. Press the headlamp switch (3) up to activate the high beam. The (blue) high beam indicator lamp is lit when the high beam is on.

#### Cruise control ON

See Figure 38. Press the cruise ON button (4) to turn ON cruise control. The cruise icon in the IM turns amber.

#### Cruise control OFF

See Figure 38. Press the cruise OFF button (7) to turn OFF cruise control. The cruise icon in the IM turns off.

## Cruise control set/decrease speed

See Figure 38. When the motorcycle reaches your intended speed, press the **SET/-** switch (1) to set the cruise speed. The amber cruise icon in the IM turns green.

Tapping the **SET/-** switch decreases speed by 1 mph (1.6 km/h). Holding the **SET/-** switch down gradually decreases cruise speed.

## Cruise control resume/increase speed

See Figure 38. If cruise has been disengaged yet the cruise indicator is amber, pressing the **RES/+** switch (2) resumes cruise. The icon in the IM glows green. The motorcycle automatically resumes cruise at the set speed.

Tapping the **RES/+** switch up increases speed by 1 mph (1.6 km/h). Holding up the **RES/+** switch gradually increases cruise speed.

## Heated hand grips (if equipped)

See Figure 38. Press the heated hand grip button (5) to turn on the heated grips. Tapping the heated hand grip button will change the heat setting.

## Trip

See Figure 38. The trip button (6) activates the trip odometers. The trip button also is used to scroll through the additional

screens of the odometer display. With the ignition off, the trip button can activate time or odometer displays.

## Menu

See Figure 39. Press the Menu button (3) to access IM menu selections. Refer to Operation > Infotainment (If Equipped) (Page 105).

## Navigate left

See Figure 39. Press the navigate left button (1) to scroll left on the IM.

## Navigate right

See Figure 39. Press the navigate right button (4) to scroll right on the IM.

## Navigate up

See Figure 39. Press the navigate up button (2) to scroll up on the IM.

## Navigate down

See Figure 39. Press the navigate down button (6) to scroll down on the IM.

## Turn signals/cancel

- **Left turn signal:** See Figure 39. Push the turn signal switch (7) to the left to activate the left turn signal.
- **Right turn signal:** See Figure 39. Push the turn signal switch (7) to the right to activate the right turn signal.
- **Cancel:** See Figure 39. Press the turn signal switch (7) straight in to manually cancel the signals.

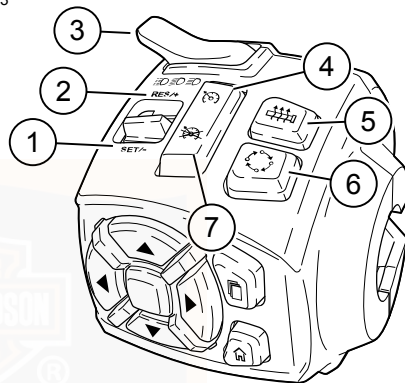
## Horn

See Figure 39. The horn is operated by pressing the horn button (8). The horn can be activated for up to 10 seconds at a time. If the horn button is held for a longer period, the horn automatically deactivates.

## OK/enter

See Figure 39. Push the OK/enter button (9) to approve or enter a section in the IM.

1513713



1. **Set cruise control speed/decrease speed**
2. **Resume set speed/increase speed**
3. **Headlamp switch**
4. **Cruise control On**
5. **Heated hand grips (if equipped)**
6. **Trip/odometer**
7. **Cruise control Off**

Figure 38. LHCM - Top (With Infotainment)

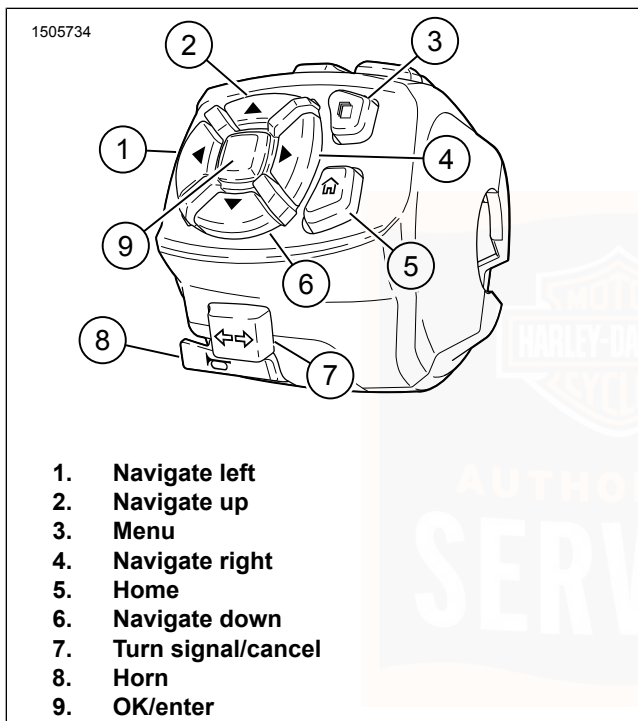


Figure 39. LHCM - Bottom (With Infotainment)

## Models Without Infotainment

### Headlamp Switch

- **Flash to Pass:** See Figure 40. When the headlamp switch (1) is in the low beam position, press down and release the headlamp switch to use the flash to pass to flash the high beam before passing another vehicle. The high beam indicator on the IM is illuminated as long as the flash to pass button is pressed. When in accessory, press the flash to pass button to activate the headlamp.
- **Low Beam:** See Figure 40. From the high beam position, press the headlamp switch (1) down to activate the low beam.
- **High Beam:** See Figure 40. Press the headlamp switch (1) up to activate the high beam. The (blue) high beam indicator lamp is lit when the high beam is on.

### Trip

See Figure 40. The trip button (2) activates the trip odometers. The trip button also is used to scroll through the additional screens of the odometer display. With the ignition off, the trip button can activate time or odometer displays.

### Turn signals/cancel

- **Left turn signal:** See Figure 40. Push the turn signal switch (4) to the left to activate the left turn signal.

- **Right turn signal:** See Figure 40. Push the turn signal switch (4) to the right to activate the right turn signal.
- **Cancel:** See Figure 40. Press the turn signal switch (4) straight in to manually cancel the signals.

## Horn

See Figure 40. The horn is operated by pressing the horn button (3). The horn can be activated for up to 10 seconds at a time. If the horn button is held for a longer period, the horn automatically deactivates.

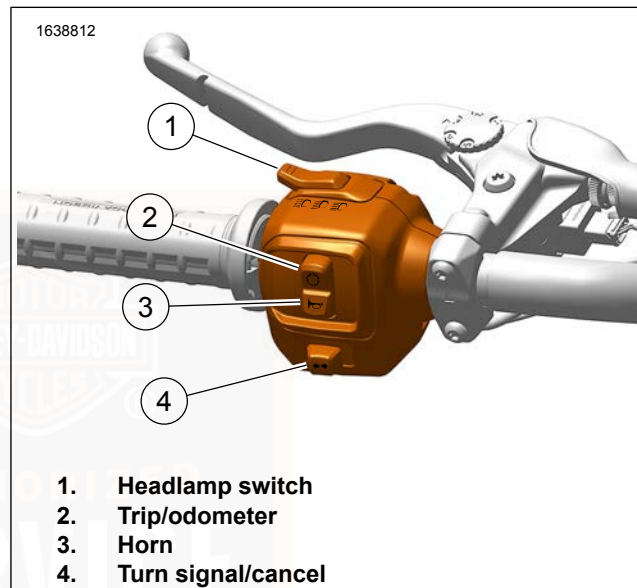















Figure 40. LHCM (Without Infotainment)



**Table 31. Left Hand Control Switches/Buttons**

SWITCH/ BUTTON	NAME	FUNCTION
<b>SET/-</b>	Cruise control set/ decrease speed	Press switch to set cruise control speed.
<b>RES/+</b>	Cruise control resume/ increase speed	Press switch to resume to a set cruise control speed.
	Flash to pass	Press and release to flash the high beam. In ACC, press to activate the headlamp.
	Low beam	Press the switch to switch the headlamp to low beam.
	High beam	Press the switch to switch the headlamp to high beam.
	Cruise control ON	Press the button to turn cruise control ON.
	Heated hand grips	Press the button to turn heated hand grips ON and select heat settings. (If equipped)
	Trip	Press the button to alternate odometer displays.

**Table 31. Left Hand Control Switches/Buttons**

SWITCH/ BUTTON	NAME	FUNCTION
	Cruise control OFF	Press the button to turn cruise control OFF.
	Navigate left	Press the button to go left on IM screen.
	Navigate up	Press the button to go up on IM screen.
	Menu	Press the button to navigate through menus in the IM.
	Navigate right	Press the button to go right on IM screen.
	Home	Press the button to return the speedometer/odometer screen.
	Navigate down	Press the button to go right on IM screen.

**Table 31. Left Hand Control Switches/Buttons**

SWITCH/ BUTTON	NAME	FUNCTION
	Turn signal <ul style="list-style-type: none"><li>• Left turn signal</li><li>• Right turn signal</li><li>• Manual cancel</li></ul>	Press the switch to signal.
	Horn	Press the button to sound horn.

## RIGHT HAND CONTROL SWITCHES

### Models with Infotainment

#### Hazard Warning 4-Way Flasher

See Figure 41. The hazard switch (1) is used to leave a stranded motorcycle in the 4-way flashing mode. With the flashers, the motorcycle can be left with the ignition off until assistance is found.

1. With the OFF/RUN switch in the run position, press on the hazard warning triangle to activate the 4-way flashers.

#### NOTE

- The fob must be present when turning on the 4-way flashers and when canceling the flashers.
  - The four-way flashers will operate when the vehicle is tipped over regardless of OFF/RUN switch position. See *Operation > Starting after Tipover (Page 116)*.
2. Turn OFF/RUN switch to the off position. The 4-way flashers continue for 2 hours or until cancelled by the rider.
  3. To cancel, turn the OFF/RUN switch to the run position. Press the warning triangle above the start switch.

#### Mode

See Figure 41. Press the mode button (2) to change the ride mode.

#### OFF

See Figure 41. Position the engine OFF/RUN switch to the Off position (3) to shut off the engine.

#### RUN

See Figure 41. Push the engine OFF/RUN switch to run (5) to enable engine start and run. The engine OFF/RUN switch must be in the run position to start or operate the engine.



## Start

See Figure 41. Position the engine OFF/RUN switch to the run position (5) to allow the engine to start.

1. Switch the OFF/RUN switch to the run position (5). Shift the transmission to neutral. The neutral (green) indicator illuminates. See Operation > Starting the Engine (Page 115).
2. Press the start switch (4) to operate the starter motor.

### NOTE

- *When the starter is activated, the headlamp is momentarily turned off to reduce battery load.*
- *If the engine does not start, the starter motor runs for 10 seconds and stops with a single press. Press the start switch to try again. After several unsuccessful attempts to start the engine, see a Harley-Davidson dealer.*

## Previous

See Figure 42. Press the previous button (1) to select the previous media file.

## Next

See Figure 42. Press the next button (4) to select the next media file.

## Play/pause

See Figure 42. Press the play/pause button (2) to play or pause the current media file.

## Volume up

See Figure 42. Press the volume up button (3) up to increase volume.

## Volume down

See Figure 42. Press the volume up button (5) up to decrease volume.

## Voice recognition

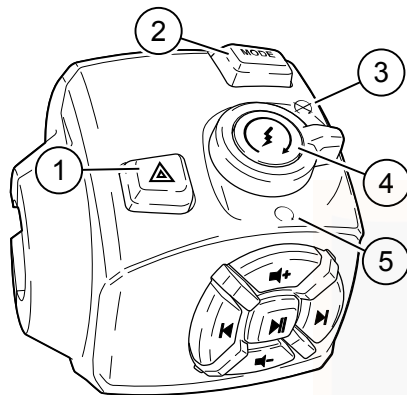
See Figure 42. The voice recognition switch (6) activates the voice recognition features on a connected mobile device.

## Traction control

See Figure 42. The traction control button (7) activates and deactivates the traction control system.

- **Disable:** Press button for 1 second with engine running and vehicle stopped.
- **Enable:** Press button at anytime to resume traction control operation.

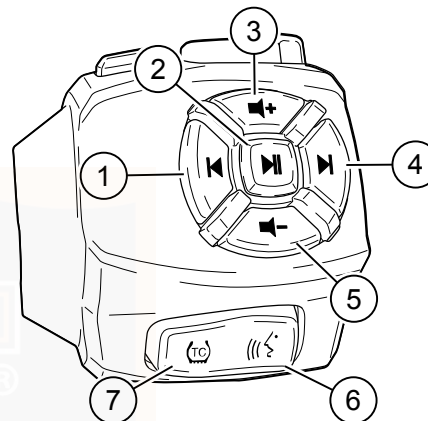
1513812



1. Hazard
2. Mode
3. Off
4. Start
5. Run

Figure 41. RHCM - Top (With Infotainment)

1513811



1. Previous
2. Play/pause
3. Volume up
4. Next
5. Volume down
6. Voice recognition
7. Traction control

Figure 42. RHCM - Bottom (With Infotainment)

## Models Without Infotainment

### Hazard Warning 4-Way Flasher

See Figure 43. The hazard switch (1) is used to leave a stranded motorcycle in the 4-way flashing mode. With the flashers, the motorcycle can be left with the ignition off until assistance is found.

1. With the OFF/RUN switch in the run position, press on the hazard warning triangle to activate the 4-way flashers.

#### NOTE

- *The fob must be present when turning on the 4-way flashers and when canceling the flashers.*
  - *The four-way flashers will operate when the vehicle is tipped over regardless of OFF/RUN switch position. See Operation > Starting after Tipover (Page 116).*
2. Turn OFF/RUN switch to the off position. The 4-way flashers continue for 2 hours or until cancelled by the rider.
  3. To cancel, turn the OFF/RUN switch to the run position. Press the warning triangle above the start switch.

### Mode

See Figure 43. Press the mode button (6) to change the ride mode.

### OFF

See Figure 43. Position the engine OFF/RUN switch to the Off position (3) to shut off the engine.

### RUN

See Figure 43. Push the engine OFF/RUN switch to run (4) to enable engine start and run. The engine OFF/RUN switch must be in the run position to start or operate the engine.

### Start

See Figure 43. Position the engine OFF/RUN switch to the Run position (4) to allow the engine to start.

1. Switch the OFF/RUN switch to the run position (4). Shift the transmission to neutral. The neutral (green) indicator illuminates. See Operation > Starting the Engine (Page 115).
2. Press the start switch (2) to operate the starter motor.

#### NOTE

- *When the starter is activated, the headlamp is momentarily turned off to reduce battery load.*
- *If the engine does not start, the starter motor runs for 10 seconds and stops with a single press. Press the start switch to try again. After several unsuccessful attempts to start the engine, see a Harley-Davidson dealer.*

## Traction control

See Figure 43. The traction control button (5) activates and deactivates the traction control system.

- **Disable:** Press button for 1 second with engine running and vehicle stopped.
- **Enable:** Press button at anytime to resume traction control operation.

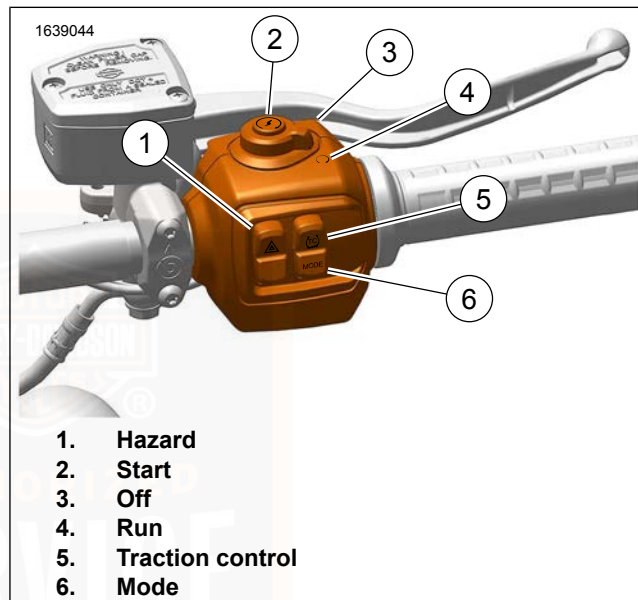













Figure 43. RHCM (Without Infotainment)

**Table 32. Right Hand Control Switches/Buttons**

SWITCH/ BUTTON	NAME	FUNCTION
	Hazard	Press to activate the 4-way flashers.
<b>MODE</b>	Mode	Press to change the ride mode.
	Off	Position to stop the engine or to prevent the engine from starting.
	Start	Press to start the engine.
	Run	Position to allow the engine to start.
	Previous	Press to select the previous media file.
	Play/pause	Press to play or pause the current media file.
	Volume up	Press to increase volume.
	Next	Press to select the next media file.

**Table 32. Right Hand Control Switches/Buttons**

SWITCH/ BUTTON	NAME	FUNCTION
	Volume down	Press to decrease volume.
	Voice recognition	Initiates a voice recognition session.
	Traction control	Press to deactivate and activate traction control.

## INFOTAINMENT (IF EQUIPPED)

### SAFETY

Follow all warnings, cautions and safety tips in this Owner's manual.

#### **⚠ WARNING**

**Set volume levels and other controls on audio and electronic devices before riding. Distractions can lead to loss of control, resulting in death or serious injury. (00088b)**

### **⚠ WARNING**

**Do not select a volume level that blocks out traffic noise or interrupts the concentration necessary for safe operation of the motorcycle. Distractions or a volume level that blocks out traffic noise could cause loss of control resulting in death or serious injury. (00539b)**

### **NOTICE**

**There are no serviceable parts inside the unit; leave all servicing to qualified service personnel. Disassembly of the unit could result in equipment damage and/or equipment malfunction. (00172a)**

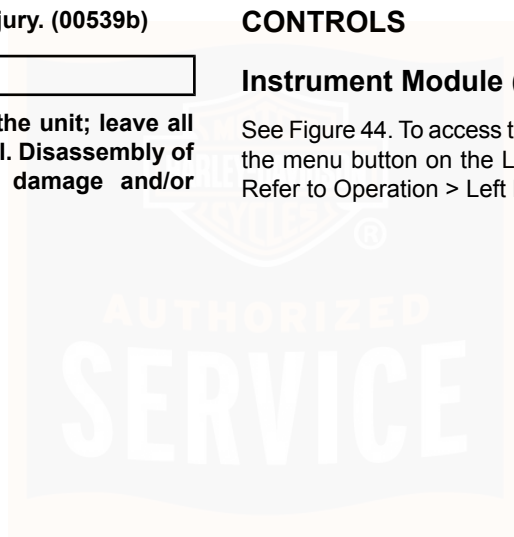
### **NOTE**

*To make full use of features and minimize distraction while on the road, configure the system with your personal preferences before riding.*

## **CONTROLS**

### **Instrument Module (IM)**

See Figure 44. To access the menu selections on the IM press the menu button on the Left Hand Control Module (LHCM). Refer to Operation > Left Hand Control Switches (Page 94).



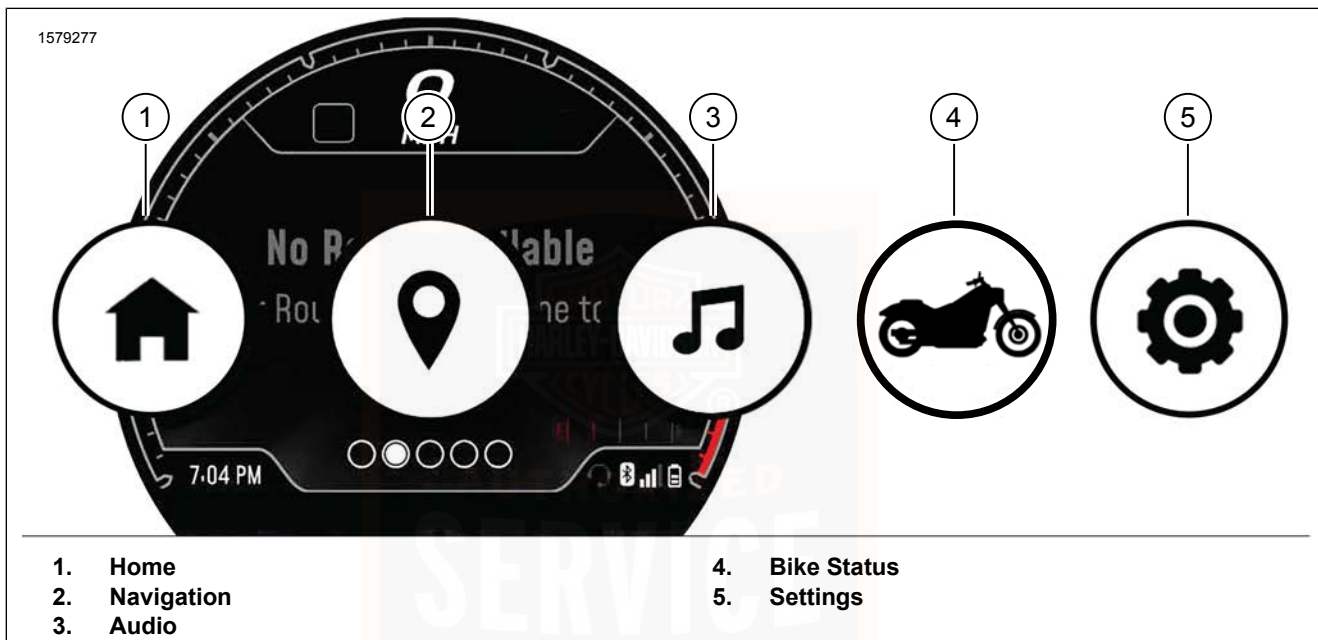


Figure 44. Menu Selections

## Hand Controls

See Figure 41 and Figure 42.

## BLUETOOTH

### Pairing Device

1. Activate Bluetooth on your device.

2. See Figure 44. **Select:** settings menu (5).
3. **Select:** Bluetooth
4. **Select:** Add new device.
  - a. **Phone:****Select:** Add New Phone
  - b. **Headset:****Select:** Add New Headset
5. Follow on screen prompts to complete pairing.

## Audio

### NOTE

*A phone and headset must be paired to the IM before audio functions can be used.*

See Figure 44. To access audio functions **Select:** audio card (3).

Use the Right Hand Control Module (RHCM) to control audio functions. Refer to Operation > Right Hand Control Switches (Page 100).

## PHONE

### NOTE

- *A phone must first be paired before call or text notifications can be viewed through the IM.*
- *A headset with microphone is required to make and receive calls via Bluetooth.*

## Notifications

Call and text notifications can be turned on or off through the settings menu.

1. See Figure 44. **Select:** settings menu (5).
2. **Select:** Phone Notifications.
3. Adjust notification settings.

## Making a Call

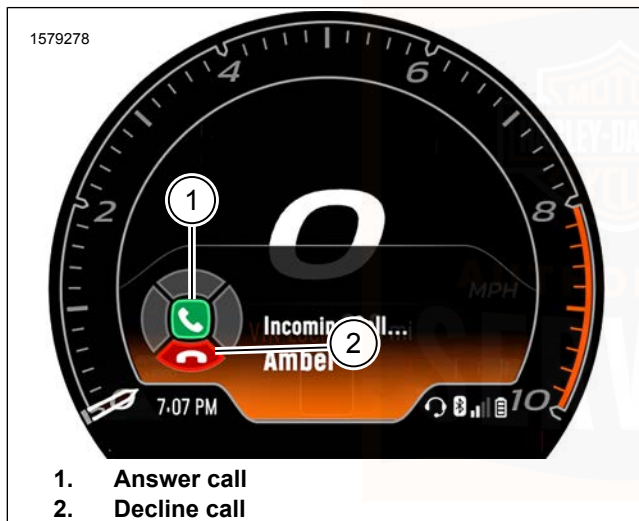
See Figure 42. Voice recognition can be used to place a call through the IM. Press the voice recognition switch and speak command into a connected headset.



## Receiving a Call

See Figure 45. When receiving a call a notification will be displayed on the IM, along with a diagram of the navigation and enter buttons on the LHCM showing available selections.

Use the LHCM to answer or decline the call.



**Figure 45. Incoming Call**

## VOICE RECOGNITION

### NOTE

*See Figure 42. The voice recognition switch (6) activates voice recognition features on a connected device (if supported). With a headset connected, press the voice recognition switch. Speak the desired command into the headset microphone.*

## NAVIGATION

### NOTE

*A device using the H-D Mobile App must be paired to the IM before navigation functions can be used.*

The navigation function is intended to assist you when traveling. In some circumstances, information provided by the navigation function may be incomplete, incorrect or outdated. Road conditions, traffic laws and restrictions (such as no left turns, street closures, one way streets, road construction detours) can frequently change. Before following any instruction, check that the instruction can be done safely and legally. Program and review navigation routes with the vehicle stopped. If necessary, safely park the vehicle if there is difficulty following the route guidance or to program a new route.

## Navigation Displays

### Moving Maps

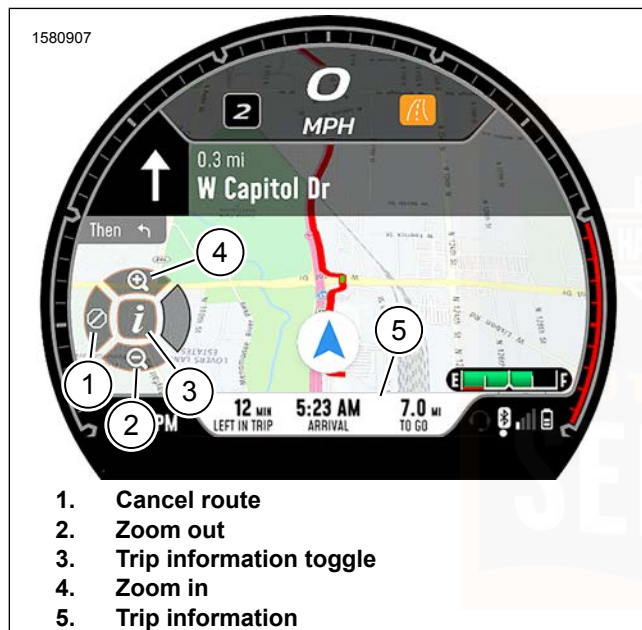


Figure 46. Moving Maps

## Setting Route

Routes must be set up within the H-D Mobile App on the connected device before using navigation.

With device connected and route set within the H-D Mobile App, select navigation from menu, follow prompts displayed on the IM to start navigation.

For more information see [www.harley-davidson.com](http://www.harley-davidson.com).

## Bike Status

Selecting the bike status card (4) displays vehicle information including, TPMS data, engine coolant temperature, and battery voltage.

## RIDE MODES

### Ride Modes







Refer to Table 33. The ride mode icon displays the currently selected ride mode. The selected ride mode can be changed using the mode button on the RHCM. Refer to Operation > Right Hand Control Switches (Page 100).

#### NOTE

*If a fault is detected, a ride mode fault icon will be shown in place of the ride mode icon.*

- **Road:** Delivers balanced performance with an intuitive blend of technology for daily use, with ABS and Traction Control System (TCS) intervention that offers peace of mind.
- **Rain:** This mode offers restrained acceleration and limited engine braking with higher levels of ABS and traction control intervention to give the rider greater confidence when riding in the rain or when traction is otherwise limited. The Rain Mode is also an appropriate setting for riders to build confidence as they become familiar with the motorcycle.
- **Sport:** Delivers the full performance potential of the motorcycle in a direct and precise manner, with full power and the quickest throttle response on tap. Traction control is set to its lowest level of intervention intended/appropriate for on-road use, and engine braking is increased. Sport Mode maximizes the rider connection to the motorcycle for a direct and visceral performance riding experience.
- **Custom Modes A and B (If Equipped):** Custom Modes allow the rider to select their own preference of engine torque delivery characteristics, engine braking, Throttle Response, TCS, ABS, and Suspension damping levels within specific ranges.

**Table 33. Ride Modes**

ICON	Ride Mode
	Road
	Rain
	Sport
	Custom A
	Custom B
	Ride mode fault

## Setting Custom Ride Mode (If Equipped)

Custom ride modes must be set up before they can be used. To set up a custom ride mode navigate to Ride Modes menu. Settings> Ride Customization> Ride Modes. Select custom ride mode to be set up. Settings from an existing ride mode can be copied and used as a starting point when setting up a custom ride mode. Refer to Table 34 for available selections.

**Table 34. Custom Ride Mode Settings**

<b>Selection</b>	<b>Result</b>
Engine Map	Sets overall power delivery characteristics in the custom ride mode. Selection will copy engine map characteristics from one of the pre set ride modes.
Engine Braking	Adjusts how much engine braking will be enabled in the custom ride mode.
Throttle Response	Adjusts the intensity of throttle response felt by the rider in the custom ride mode.
Traction Control	The traction control level adjusts how much rear wheel slip and front wheel lift mitigation the system will allow. Selection will copy traction control characteristics from one of the pre set ride modes.
Anti-Lock Braking	Adjusts how much rear wheel lift mitigation and ABS intervention is present within ride mode. Selection will copy ABS characteristics from one of the pre set ride modes.

## **ELECTRONIC THROTTLE CONTROL (ETC)**

The motorcycle has an Electronic Throttle Control (ETC). Instead of using a mechanical cable connection to the throttle body, this technology uses redundant grip sensors to indicate rider requested throttle position to the Electronic Control Module (ECM). The ECM then regulates proper fuel/air intake and ignition timing based on the rider's actions.

The Electronic Control Module (ECM) monitors the status of the grip sensors, throttle plate actuation and airflow. If Trouble Codes are detected, the ECM disables cruise control, illuminates the check engine lamp and will transition to one of the following modes.

### **ETC Limited Performance Mode**

The rider experiences near-normal operation. The motorcycle operates with provisions to guard against unintended acceleration.

### **ETC Power Management Mode**

The throttle plate actuator returns to an "idle detent" or "limp-home" position, which provides enough torque to achieve speed of about 25 mph (40 km/h). The motorcycle's response to grip sensor input is reduced.

## ETC Forced Idle Mode

The throttle plate actuator is forced to a "fast idle" position, which provides enough torque to crawl, but not enough torque to operate at traffic speeds. This results in higher than normal idle speed and no throttle response.

## ETC Forced Shut Down Mode

The engine is forced to shut down.

## USB PORT (IF EQUIPPED)

### ⚠ WARNING

**Set volume levels and other controls on audio and electronic devices before riding. Distractions can lead to loss of control, resulting in death or serious injury. (00088b)**

See Figure 47. The motorcycle has a USB-C port for charging a phone or media device and software update data transfer. Use an interface cable to connect with these devices. The USB-C port is powered and operational when the vehicle is turned on or in accessory mode.

### NOTE

*USB-C port cannot be used for playing music stored on a device.*

*Do not leave items connected to the USB-C port unattended.*

See Figure 47. USB-C port (1) is located in the Left Hand (LH) steering head cover (2).

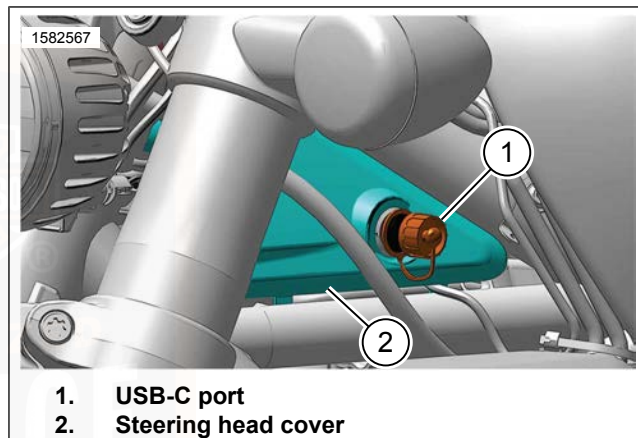


Figure 47. USB-C Port

## HEATED GEAR CONNECTOR

The heated gear connectors supply power to selected Harley-Davidson riding apparel.

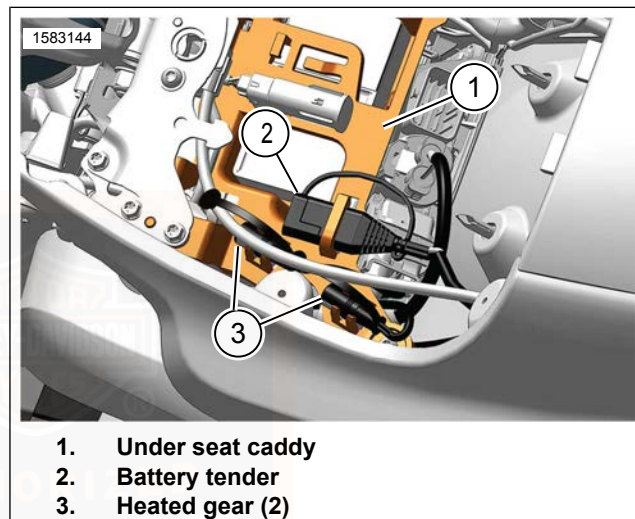
See Figure 48 or Figure 49. The heated gear connectors (3) are stored under the seat in the under seat caddy (1). When

in use, heated gear connectors must be routed properly to prevent damage.

1. Remove or lift seat. See Service Procedures > Seat (Page 183).
2. See Figure 48 or Figure 49. Remove the heated gear connectors (3) from storage location on under seat caddy (1).

**NOTE**

- **Do not** route the heated gear harness between frame and the seat. Damage to the harness occurs.
- When the heated gear connectors are not in use, verify that dust caps are installed.



**Figure 48. Under Seat (Top Mounted Fuel Tank)**

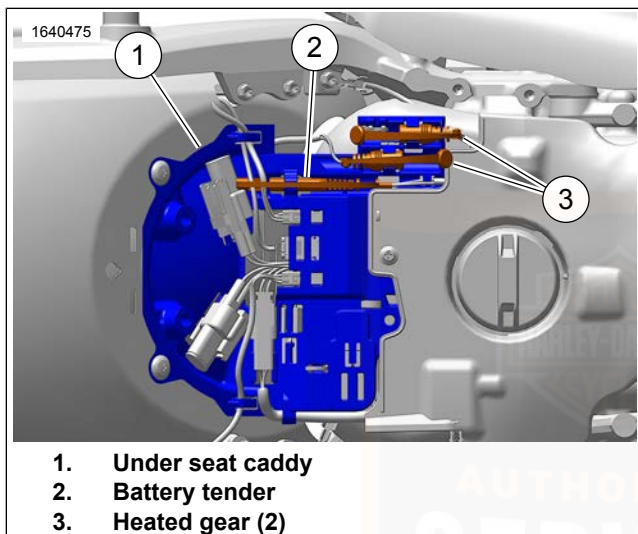


Figure 49. Under Seat (Fuel Tank Under Seat)

## STARTING THE ENGINE

### General

#### NOTICE

The engine should be allowed to run slowly for 15-30 seconds. This will allow the engine to warm up and let oil reach all surfaces needing lubrication. Failure to comply can result in engine damage. (00563b)

Rolling the throttle before starting the motorcycle is unnecessary.

### Starting

#### ⚠ WARNING

Shift transmission to neutral before starting engine to prevent accidental movement, which could result in death or serious injury. (00044a)

1. See Operation > Right Hand Control Switches (Page 100). With security fob present, set the OFF/RUN switch to RUN. Do not roll the throttle.

#### NOTE

*The check engine indicator will light when the ignition is turned on. You will hear the fuel pump run for a short time as it pressurizes the fuel system.*

2. Squeeze the clutch lever in against the hand grip. Shift transmission to neutral.
3. Press the start switch to start the motorcycle.

#### NOTE

*To allow enhanced lubrication of the engine before start, the engine will crank a number of turns before starting.*

4. When the engine has started, you can operate your motorcycle as you normally would after raising the jiffy stand.

#### NOTE

*The ABS and TCS indicators will flash until vehicle is moving approximately 3 mph (5 km/h).*

## STARTING AFTER TIPOVER

### ⚠ WARNING

**If tip occurs, check all controls for proper operation. Restricted control movement can adversely affect the performance of the brakes, clutch or ability to shift, which could result in loss of vehicle control and death or serious injury. (00350a)**

#### NOTE

- *If the motorcycle is tipped over, the "BIKE TIPPED" warning indicator appears on the instrument module and four-way flashers activate.*
- *The engine cannot start until the tip condition is reset.*
- *The ignition must be reset to turn four-way flashers off.*

1. Set motorcycle upright.
2. Cycle the OFF/RUN switch to OFF.
3. Wait 10 seconds.
4. Cycle the OFF/RUN switch to RUN.
5. Push hazard switch to turn four-way flashers off.

## ENGINE IDLE TEMPERATURE MANAGEMENT SYSTEM (EITMS)

The Engine Idle Temperature Management System (EITMS) can provide limited cooling of the rear cylinder for riders who frequently find themselves in prolonged idle conditions or traffic congestion.

### Operation

When engine temperature reaches a predetermined point, the EITMS turns off the rear cylinder fuel injector. The rear



cylinder becomes an "air pump" which works to cool the engine.

EITMS activates (rear cylinder turns off) when **all** of the following conditions are met:

- Ambient temperature or engine temperature exceeds temperature threshold.
- Throttle control is at idle.
- Vehicle speed under 4 km/h (2 mph).
- Engine speed under 1500 rpm.

#### NOTE

*EITMS does not activate within the first eight seconds after starting the vehicle.*

EITMS disables (rear cylinder begins firing again) if **any one** of the following occurs:

- Ambient temperature or engine temperature falls below temperature threshold.
- Throttle control is above idle.
- Vehicle speed exceeds 5 km/h (3 mph).
- Engine speed exceeds 1600 rpm.
- Clutch is released with vehicle in gear.

When the engine is in EITMS operation, you may notice a difference in idle cadence. Additionally, there may be a unique exhaust odor. These are both considered to be normal conditions.

## Enabling/Disabling EITMS

**Enabled:** The EITMS engine cooling feature automatically activates whenever the vehicle comes to a complete stop and is idling during elevated temperature conditions. When the feature is enabled, it may not activate under cool riding conditions.

**Disabled:** The EITMS feature is not active under any conditions.

EITMS can be enabled or disabled by performing the following procedure.

1. Bring an assigned fob within range. Push the engine OFF/RUN switch on the right handlebar to the RUN position (the motorcycle may be running or not running).
2. Push the throttle to roll-off position and hold.
3. See Figure 35. After approximately 3 seconds, the cruise indicator lamp will either flash green (EITMS enabled) or orange (EITMS disabled).
4. Repeat the procedure as necessary to enable or disable EITMS.

#### NOTE

- A flashing cruise lamp indicates the EITMS setting. A solid (non-flashing) lamp indicates the cruise control setting.
- The EITMS setting remains in effect until it is changed by the rider or dealer. There is no need to reconfigure EITMS at each startup.

## STOPPING THE ENGINE

1. Push the off/run switch to off.
2. Remove assigned fob from range.

#### NOTE

If the engine stalls or stops for any reason, push the off/run switch to off to prevent battery discharge.

## ANTI-LOCK BRAKE SYSTEM (ABS)

### Front Brake Lever

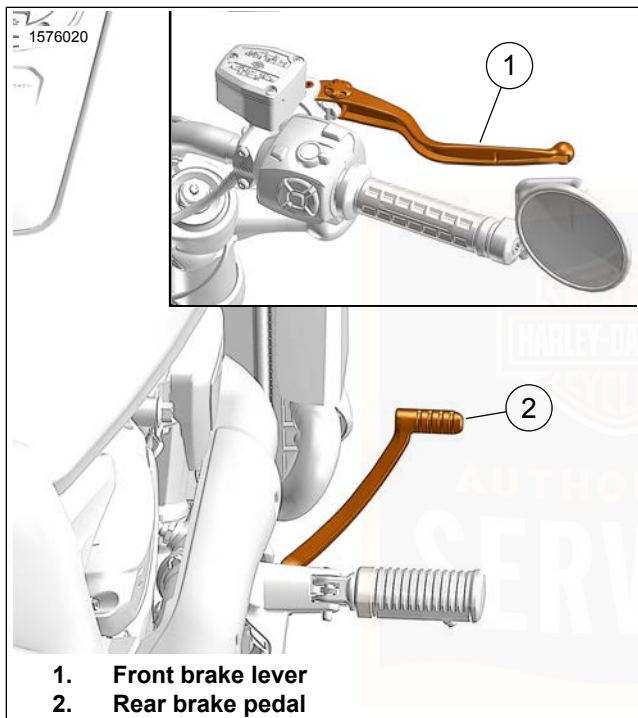
#### ▲ WARNING

Do not position fingers between hand control lever and handlebar grip. Improper hand positioning can impair control lever operation and cause loss of vehicle control, which could result in death or serious injury. (00032a)

See Figure 50. The front brake hand lever (1) controls the front wheel brake. The lever is on the right handlebar. Operate the hand lever with the fingers of the right hand.

### Rear Brake Pedal

See Figure 50. The rear brake pedal (2) controls the rear wheel brake. The pedal is on the right side. Operate the rear brake pedal with the right foot.



**Figure 50. Brake Controls**

## **ABS Functions**

ABS is designed to prevent the wheels from locking under braking and helps the rider maintain control when braking in a straight-line, urgent situation. ABS operates independently on front and rear brakes to keep the wheels rolling and prevent uncontrolled wheel lock.

## **How ABS Works**

The rider recognizes ABS activation by the slight pulsing sensation in the hand lever or the rear brake pedal. A clicking sound from the ABS module can also be heard. Both are the result of normal operation. Refer to Table 35.

## **How To Use ABS**

While an advantage in emergency braking, ABS is not a substitute for safe riding. The safest way to stop a motorcycle is using both brakes.

During an emergency stopping situation, maintain pressure on the brakes through all ABS events. Do not modulate or "pump" the brake controls. The wheels do not lock until the end of the stop when motorcycle speed slows to a rate at which ABS is no longer needed.

## ABS: Tires and Wheels

Motorcycles equipped with ABS must always use Harley-Davidson tires and wheels. The ABS monitors the rotational speed of the wheels through individual wheel speed sensors. Changing to different diameter wheels or different

size tires can alter the rotational speed. Different-sized wheels and tires can upset the calibration of the ABS and have an adverse effect on its ability to detect and prevent uncontrolled wheel lockups. Operating at tire pressures other than those pressures specified can reduce ABS braking performance. Refer to Owner Manual > Specifications (Page 31).

**Table 35. ABS Symptoms and Conditions**

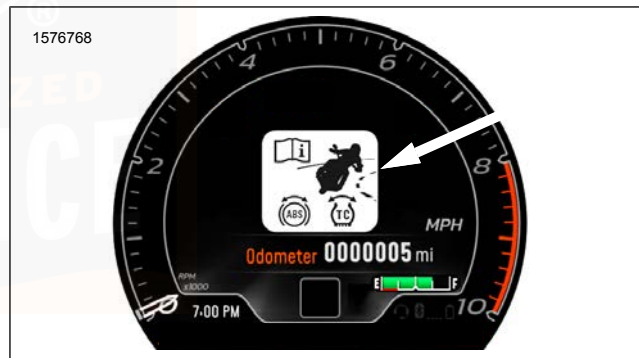
<b>SYMPTOM</b>	<b>CONDITION</b>
ABS lamp continuously lit	ABS fault detected. See a Harley-Davidson dealer for service.
ABS lamp slow flashing	This indicates a normal self-diagnostics process when the motorcycle is first turned on and the speed is under 3 mph (5 km/h). ABS is not operational until the lamp turns off. If the lamp continues flashing at speeds greater than 3 mph (5 km/h), see a Harley-Davidson dealer for service.
ABS lamp rapid flashing and solid security/fault indicator lamp	This indicates a potential brake system fault. Apply both front and rear brakes to reduce speed and to stop motorcycle. The brake controls could feel stiff when applied. If this occurs, move the motorcycle to a safe location to stop. Service is required to correct the fault before continuing to ride. See a Harley-Davidson dealer for service.
Pulsing brake lever or pedal during an ABS event	Normal condition.
Clicking sound during an ABS event	Normal condition.
"Surge" sensation while braking	Normal condition. This is most noticeable when braking with one brake (front only or rear only). Result of a reduction in deceleration which can be caused by cracks or bumps in road, engine braking (high engine RPMs causing the rear wheel to slow down), hard braking at slow speeds, and other conditions. This is due to ABS modulating caliper brake pressure to prevent uncontrolled wheel lock.

**Table 35. ABS Symptoms and Conditions**

<b>SYMPTOM</b>	<b>CONDITION</b>
Temporarily stiff rear brake pedal	Normal condition. Engine braking (high engine RPMs causing the rear wheel to slow down) or down shifting can activate ABS. If applying the rear brake at the same time or immediately after, the ABS may be closing a valve to prevent pressure to the rear brake. This is due to ABS modulating caliper brake pressure to prevent uncontrolled wheel lock.
Tire chirp	Normal condition. Depending on surface, tire can chirp without locking the wheel.
Black mark on pavement	Normal condition. Depending on surface, tire can leave a black mark without locking the wheel.
Wheel lock at low speed	Normal condition. ABS does not activate on front wheel below 3 mph (5 km/h) or on rear wheel below 5 mph (8 km/h).

## **CORNERING RIDER SAFETY ENHANCEMENTS**

See Figure 51. Motorcycles equipped with Cornering Rider Safety Enhancements will display an icon on the IM when the OFF/RUN switch is switched to the RUN position.



**Figure 51. Cornering Rider Safety Enhancements Icon (With Infotainment)**

## **Cornering Enhanced ABS (C-ABS) Functions**

The Cornering Anti-lock Braking System (C-ABS) is a variant of the ABS that takes into consideration the lean angle of the motorcycle. While cornering, the available grip for braking is reduced and C-ABS automatically compensates for this.

For additional ABS information Refer to Operation > Anti-Lock Brake System (ABS) (Page 118).

## **Tire Pressure Monitoring System (TPMS) (If Equipped)**

TPMS alerts the rider to low tire air pressure. Maintaining proper tire air pressure is important both for safety and for tire life. The TPMS displays current front and rear tire pressure on the IM and displays an indicator to alert the rider when tire pressure is low, and the pressure should be checked.

## **Cornering Enhanced Traction Control (C-TCS), and Front Lift Mitigation (FLM)**

### **How Cornering Enhanced Traction Control Works**

The Cornering Enhanced Traction Control System (C-TCS) is a variant of TCS that takes into consideration the lean angle of the motorcycle. C-TCS is designed to prevent the rear wheel from excessive spinning under acceleration while cornering. The action of C-TCS is tailored when cornering

based on lean angle. Each pre-programed ride mode has a specific level of C-TCS. For models equipped with customizable ride modes the rider can select from three levels of C-TCS intervention.

C-TCS is also designed to support Front-Wheel Lift Mitigation (FLM) to reduce the height and duration of front-wheel lift (wheelie). The height and duration of front-wheel lift is tied to the rider-selected Ride Mode, with Rain being the most-restrictive and Sport being the least-restrictive of the standard modes. Turning off TCS fully disables both TCS and FLM.

For additional TCS information Refer to Operation > Traction Control (Page 123).

## **Cornering Enhanced Drag-Torque Slip Control System (C-DSCS)**

The Cornering Enhanced Drag-Torque Slip Control System (C-DSCS) is a variant of Drag-Torque Slip Control System (DSCS) that uses the lean angle of the motorcycle while cornering to tailor the action of Cornering Drag-Torque Slip Control System (C-DSCS) to prevent rear wheel lock.

For additional DSCS information Refer to Operation > Anti-Lock Brake System (ABS) (Page 118).

For additional information on Cornering Rider Safety Enhancements [www.h-d.com/rdrs](http://www.h-d.com/rdrs)

## TRACTION CONTROL

### How Traction Control Works

The TCS is designed to prevent the rear wheel from “spinning out” while accelerating. Traction-control can improve rider confidence when available traction is reduced due to wet weather, a change in road surface or unpaved roads. Each pre-programmed ride mode has a specific level of TCS intervention.

During start-up, the traction-control lamp flashes simultaneously with the ABS lamp to indicate that the system is performing a wheel speed sensor check. The traction control system is operational during the wheel speed sensor check. After the sensor check is complete the traction control lamp should turn off.

### How To Use Traction Control

#### NOTE

*When running a vehicle on a dyno it is advised that traction control be disabled to prevent intervention based on tire speed differences front to rear.*

Traction control is automatically enabled at each ignition start cycle.

See Figure 42 or Figure 43. The TCS can be disabled by pressing and holding the traction control switch for one full second anytime the vehicle is at a complete stop and the engine is running.

Changing to Rain Mode will automatically re-enable TCS, but TCS may be disabled again after Rain Mode has been selected. TCS can be re-activated with the push of a button on the right hand control when the motorcycle is stopped or underway. The traction control indicator will illuminate and remain illuminated to indicate traction control and front lift mitigation are disabled. However, if the TCS lamp remains on with the fault alert indicator, it means the traction control system has faulted, if this occurs see an authorized Harley-Davidson dealer.

During some fault conditions Traction Control will be enabled with degraded function and cannot be disabled.

If the traction control lamp begins fast-blinking while riding, it means the traction-control system is intervening.

### Drag-Torque Slip Control System (DSCS)

Drag-Torque Slip Control (DSCS) is designed to reduce excessive rear-wheel slip and help prevent rear-wheel lock under deceleration, which typically occurs when the rider makes an abrupt down-shift gear change or decelerates on wet or slippery road surfaces.

When DSCS detects excessive rear wheel slip under deceleration it will adjust engine torque delivery to better match rear-wheel speed to road speed.

Intervention of the Drag Torque Slip Control is indicated by fast-blinking of the traction control lamp. However, disabling TCS will not disable Drag Torque Slip Control.

**Table 36. Traction Control Symptoms and Conditions**

<b>SYMPTOM</b>	<b>CONDITION</b>
Traction control lamp off	Traction control system active.
Traction control lamp continuously lit	Traction control system deactivated by user.
Traction control lamp and security/fault indicator lamp continuously lit	Traction control system faulted.
Traction control lamp flashing	Normal condition. Traction control intervention.
Reduction of throttle response during a traction control event	Normal condition. Traction control intervention.
"Surge" sensation while decelerating	Normal condition. Drag torque slip control intervention.

## SHIFTING GEARS

### NOTICE

**The clutch must be fully disengaged before attempting a gear shift. Failure to fully disengage the clutch can result in equipment damage. (00182a)**

## Stopped, Engine Off

Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch. Gears do not engage because the transmission shafts are not turning and shifter components

are not lined up. Rock the motorcycle backward and forward while lightly pressing the shift lever.

## Starting from a Stop

### NOTE

*Always start the engine with the transmission in neutral. Always start forward motion in first gear.*

1. With the engine running and the jiffy stand retracted, pull the clutch hand lever against the handlebar grip to disengage the clutch.



2. Press the gear shift lever down to the end of its travel and release. The transmission is now in first gear.
3. Ease out the clutch lever and at the same time, gradually open the throttle.

## Upshift (Acceleration)

See Figure 52. Engage the next higher gear when the motorcycle reaches the shifting speed. Refer to Table 37.

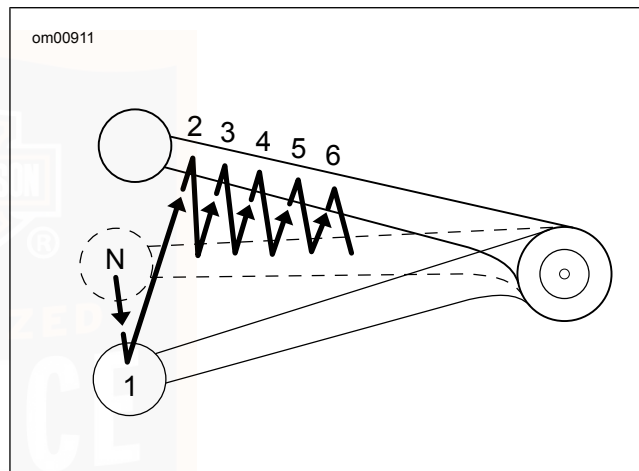
**Table 37. Recommended Upshift Speeds**

GEAR CHANGE	mph	km/h
First to second	15	25
Second to third	25	40
Third to fourth	35	55
Fourth to fifth	45	70
Fifth to sixth	55	85

1. Close the throttle.
2. Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch.
3. Lift the gear shift lever up to the end of its travel and release.
4. Ease out the clutch lever and gradually open the throttle.
5. Repeat the previous steps to engage remaining gears.

### NOTE

- Disengage the clutch completely before each gear change.
- Partially open the throttle so the engine does not drag when the clutch lever is released.



**Figure 52. Shifting Sequence: Upshift**

## Downshift (Deceleration)

### ⚠ WARNING

**Do not downshift at speeds higher than those listed. Shifting to lower gears when speed is too high can cause the rear wheel to lose traction and lead to loss of vehicle control, which could result in death or serious injury. (00045b)**

See Figure 53. When speed decreases, as when climbing a hill or slowing for a turn, shift to the next lower gear. Refer to Table 38.

**Table 38. Recommended Downshift Speeds**

GEAR CHANGE	mph	km/h
Sixth to fifth	50	80
Fifth to fourth	40	65
Fourth to third	30	50
Third to second	20	30
Second to first	10	15

### NOTE

*The shifting points shown in the table are recommendations. Individual shifting points can differ from the table.*

1. Close the throttle.

2. Slowly pull clutch hand lever in against handlebar grip to fully disengage clutch.
3. Press the gear shift lever down to the end of its travel and release.
4. Ease out the clutch lever and gradually open the throttle.
5. Repeat the previous steps to engage remaining gears.

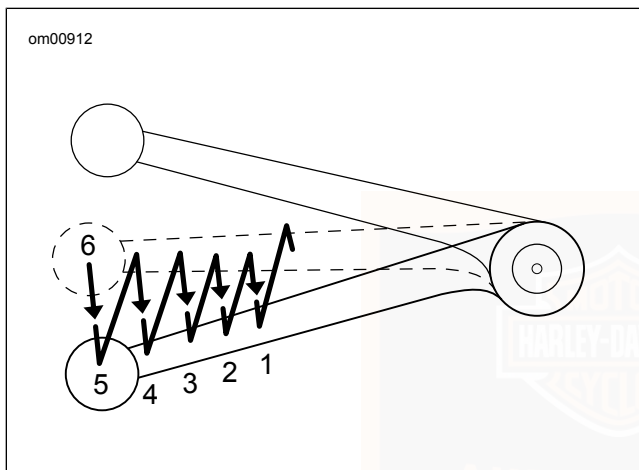
### NOTE

- *Disengage the clutch completely before each gear change.*
- *Partially open the throttle so the engine does not drag when clutch lever is released.*

### NOTICE

**Shift to neutral before stopping engine. Shifting mechanism can be damaged by shifting gears while engine is stopped. (00183a)**

The gear shifter mechanism permits shifting the transmission to neutral from either first or second gear.



**Figure 53. Shifting Sequence: Downshift**

## NOTES

---



## GENUINE MOTOR PARTS AND ACCESSORIES

Stop at your Harley-Davidson dealer to pick up a copy of the Genuine Motor Parts and Accessories catalog or go to [www.harley-davidson.com](http://www.harley-davidson.com) to view thousands of Genuine Motor Accessories that are available for Harley-Davidson motorcycles.

The website includes the following tools and resources for accessorizing and personalizing your motorcycle.

### Online Catalog

The full Genuine Motor Parts and Accessories catalog is available online in Portable Document Format (PDF) format. The catalog includes hundreds of pages of Harley-Davidson accessories and maintenance products.

### Shop for Your Bike

Browse through categories of accessories and options available specifically for your motorcycle. View product descriptions, pricing, fitment and online instruction sheets for many of the available products.

## CLEANING AND GENERAL CARE

- Harley-Davidson cleaning products are tested extensively for use on motorcycle surfaces. These products are formulated to be compatible with one another. See a Harley-Davidson dealer to purchase recommended cleaning products. Refer to Table 39 and Table 40.
- Care, cleaning and protection of the vehicle surfaces is the responsibility of the owner.
- Clean and protect the cosmetic surfaces on your motorcycle as often as possible to inhibit rust and corrosion.
- Some painted finishes and other surfaces may be scratched if gravel, dirt or grime are rubbed across the surface during washing. Use clean towels and avoid rubbing sediment across gloss finishes.
- Do not use paper towels, cloth diapers or other materials with nylon fibers which can cause fine scratches to surfaces.
- For repair of scratched surfaces, see a Harley-Davidson dealer.

### ⚠ WARNING

**Observe warnings on labels of cleaning compounds. Failure to follow warnings could result in death or serious injury. (00076a)**

### **▲ WARNING**

**Do not wash brake discs with cleaners containing chlorine or silicone. Cleaners containing chlorine and silicone can impair brake function, which could result in death or serious injury. (00077a)**

### **NOTICE**

**Do not use a pressure washer to clean motorcycle. Using a pressure washer can result in equipment damage. (00489c)**

### **NOTICE**

**Use of abrasive products or powered buffing equipment will cause permanent cosmetic damage to body panels. Use only recommended products and techniques outlined in this manual to avoid damaging body panels. (00245b)**

## **Cleaning Wheels and Tires**

### **NOTE**

*Corrosion to wheels is not considered to be a defect in materials or workmanship.*

- Wheels can corrode or be cosmetically damaged if they are not properly cleaned, polished and preserved.
- Harley-Davidson recommends that wheels be cared for weekly.
- Keep wheels clean from harsh chemicals, acid-based wheel cleaners, salt, and accumulated brake dust.
- After washing wheels with WHEEL & TIRE CLEANER, use the polish and sealing products according to the type of wheels on your motorcycle. Refer to Table 39.

## **Radiator**

See Maintenance and Lubrication > Cleaning Radiator (Page 158) for important information regarding the cleaning of the radiator.

## **RECOMMENDED CLEANING PRODUCTS**

The following products are recommended for Harley-Davidson motorcycles, parts and accessories. Your motorcycle may not have all the components shown in the tables.

**Table 39. Recommended Cleaning and Care Products**

<b>PRODUCT PART NO.</b>	<b>PURPOSE</b>	<b>FRAME</b>	<b>BODY PANELS</b>	<b>WHEELS</b>	<b>DENIM FINISH</b>	<b>OTHER</b>
BARE ALUMINUM WHEEL PROTECTANT - INDIVIDU- AL WIPES 93600063	Corrosion control for bare aluminum surfaces.	No	No	Yes	No	"Burst" collection
BARE METAL POLISH 93600028 (U.S.) 93600083 (Non-U.S.)	Polishes non-clear coated polished aluminum or polished stainless steel surfaces.	As applicable				
BLACK LEATHER REJUVENATOR 93600033 (U.S.) 93600081 (Non-U.S.)	Rejuvenates black leather products so they look brand new.	No	No	No	No	Black leather goods
BUG REMOVER 93600122 (U.S.) 93600140 (Non-U.S.)	Removes bugs from metal, plastic or painted surfaces. Also available as in- dividual wipes (97400-10).	Yes	Yes	Yes	Yes	
CHROME CLEAN & SHINE 93600031 (U.S.) 93600082 (Non-U.S.)	Shines chrome-plated surfaces and cleans brushed aluminum or stainless steel surfaces.	As applicable				
DENIM PAINT CLEANER 93600124 (U.S.) 93600127 (Non-U.S.)	Waterless quick cleaner and detailer.	Yes	Yes	Yes	Yes	
ENGINE BRIGHTENER 93600002 (U.S.) 93600068 (Non-U.S.)	Rejuvenates wrinkle black engine fin- ish.	No	No	No	No	Wrinkle black en- gines

**Table 39. Recommended Cleaning and Care Products**

<b>PRODUCT PART NO.</b>	<b>PURPOSE</b>	<b>FRAME</b>	<b>BODY PANELS</b>	<b>WHEELS</b>	<b>DENIM FINISH</b>	<b>OTHER</b>
GLAZE POLY SEALANT 93600026 (U.S.) 93600079 (Non-U.S.)	Provides a protective barrier for glossy paint surfaces and chrome.	Yes	Yes	As applicable	No	
GLOSS DETAILER 93600123 (U.S.) 93600125 (Non-U.S.)	Produces high gloss with UV protection. Allows chrome to breathe, unlike wax. Good for windshields. Also available as individual wipes (97401-10).	Yes	Yes	Yes	No	
HARLEY TRAVEL CARE KIT 93600007	Travel size cleaning and care products. (Not for use on denim finishes.)	Yes	Yes	Yes	No	
LEATHER PROTECTANT 93600034 (U.S.) 93600080 (Non-U.S.)	Weatherproofs and preserves leather products.	No	No	No	No	Leather goods
QUICK WASH 93600011 (U.S.) 93600071 (Non-U.S.)	A quick wash for a lightly soiled motorcycle. Cleans all surfaces, sheeting action prevents spots.	Yes	Yes	Yes	Yes	
SCRATCH & SWIRL REPAIR 93600025 (U.S.) 93600074 (Non-U.S.)	Removes fine scratches and swirls.	Yes	Yes	No	No	
SEAT, SADDLEBAG & TRIM CLEANER 93600010	Cleans and conditions vinyl, leather and plastic. Use on seats, saddlebags, inner fairings and any other trim.	No	No	No	No	Seats, saddlebags and trim



**Table 39. Recommended Cleaning and Care Products**

<b>PRODUCT PART NO.</b>	<b>PURPOSE</b>	<b>FRAME</b>	<b>BODY PANELS</b>	<b>WHEELS</b>	<b>DENIM FINISH</b>	<b>OTHER</b>
SPRAY CLEANER & POL- ISH 93600029 (U.S.) 93600084 (Non-U.S.)	Aerosol quick cleaner and detailer. Reduces static attraction to dust. Works great for removing bugs.	Yes	Yes	Yes	No	
SUNWASH BIKE SOAP 93600129 (U.S.) 93600077 (Non-U.S.)	Thorough washing of all surfaces with a wash mitt. Reduces hard water spots when washing a motorcycle in the sun.	Yes	Yes	Yes	Yes	
WHEEL & TIRE CLEANER 93600024 (U.S.) 93600076 (Non-U.S.)	Removes brake dust and road grime from wheels, tires and whitewalls. Do not use on frames or anodized parts.	No	No	Yes	No	Black- coated exhaust pipes and mufflers
WINDSHIELD CLEANER 93600067	Quick windshield cleaner in convenient single use wipe.	Yes	Yes	No	No	Wind- shield

**Table 40. Recommended Surface Care Products**

<b>PRODUCT PART NO.</b>	<b>PURPOSE</b>
BUG EATER SPONGE 93600110	When paired with water and BUG REMOVER, the BUG EATER SPONGE breaks down and dissolves baked on bugs and road grime.
CLEANING BRUSH KIT 94844-10	Brush kit for detailing your motorcycle.
DETAILING SWABS 93600107	Large cotton swabs for cleaning crevices and detailed surfaces.

**Table 40. Recommended Surface Care Products**

<b>PRODUCT PART NO.</b>	<b>PURPOSE</b>
DISPOSABLE DETAILING SOFT CLOTH 93600114	Non-absorbent cloth for applying and buffing SWIRL & SCRATCH REPAIR and GLAZE POLY SEALANT to painted surfaces or chrome.
HARLEY WASH BUCKET 94811-10	Wash bucket with apron to hold your supplies. Includes GRIT GUARD insert.
HOG BLASTER MOTORCYCLE DRYER 94651-09 (120 V)	Blows a stream of warm dry filtered air. Reduces streaks and water spots.
MICROFIBER DETAILING CLOTH 94663-02	Highly absorbent detailing cloth for polishing and sealing. Contains no nylon fibers.
SYNTHETIC DRYING CHAMOIS 94791-01	Extra-absorbent, non-streaking synthetic towel for drying. Dampen towel and wring out before using for greatest absorbency.
WASH MITT 94760-99	Absorbent wool-blended washing mitten.
WHEEL & SPOKE BRUSH 43078-99	Cone-shaped scrub brush for wheels.

**Table 41. Wheel Polish and Sealing Products**

<b>WHEELS</b>	<b>PRODUCT</b>	<b>DESCRIPTION</b>
Anodized	GLAZE POLY SEALANT	Cleans surface, removes fine scratches. Provides a breathable sealant against acid, chemicals, salt and brake dust.
	GLOSS DETAILER	Seals and protects against harsh chemicals, salt and other sediments to prevent corrosion.
Bare aluminum	BARE ALUMINUM WHEEL PROTECTANT	Creates a protective coating for bare aluminum wheels to prevent oxidation. Individual wipe.

**Table 41. Wheel Polish and Sealing Products**

<b>WHEELS</b>	<b>PRODUCT</b>	<b>DESCRIPTION</b>
Chrome	CHROME CLEAN & SHINE	Non-abrasive cleaner to brighten chrome wheels.
	GLOSS DETAILER	Seals and protects against harsh chemicals, salt and other sediments to prevent oxidation.
Polished aluminum or stainless steel	BARE METAL POLISH	Microabrasive polish to refurbish polished wheels. Do not use on chrome.

## **WASHING THE MOTORCYCLE**

Use only recommended cleaning and care products. Refer to After Riding > Recommended Cleaning Products (Page 130).

### **NOTE**

*During rinsing and washing, avoid direct spray on electrical components and any luggage or saddlebag sealing areas (if equipped). Avoid spraying water under leather saddlebag covers (if equipped).*

### **Preparation**

1. Allow motorcycle to cool before rinsing or washing. Spraying water on hot surfaces can leave water spots and mineral deposits.
2. Rinse the motorcycle from the bottom up.
3. To loosen dried bugs or hardened dirt, allow surfaces to soak under a damp towel.

### **Cleaning Wheels and Tires**

1. Rinse wheel and tire surfaces. Avoid splashing brake dust on chrome or painted parts.
2. Apply WHEEL & TIRE CLEANER. Allow cleaner to set for one minute.
3. Clean the wheel with a BUG EATER SPONGE or WHEEL & SPOKE BRUSH. Thoroughly scrub all brake dust and other sediments off the wheel. Accumulated brake dust can trap moisture and dirt, which leads to wheel corrosion.
4. Rinse well.

### **Washing the Motorcycle**

### **NOTE**

*See the appropriate instructions in this section for cleaning leather, denim (flat) finishes, windshields or other special surfaces.*

1. If necessary, use BUG REMOVER to remove bug splatters.
  - a. Rinse the affected surfaces during preparation.
  - b. Spray the area with BUG REMOVER.
  - c. Wait one minute while the BUG REMOVER penetrates the bug splatters.
  - d. Use the BUG EATER SPONGE while washing to easily remove bugs.
2. Prepare the wash.
  - a. Fill a HARLEY WASH BUCKET with clean water.
  - b. Add SUNWASH BIKE SOAP, following the directions on the package.
  - c. Soak the WASH MITT and/or a BUG EATER SPONGE in the SUNWASH solution.
3. Wash all surfaces starting at the top working down toward the ground.
4. Rinse the motorcycle twice in both directions:
  - a. Rinse from the bottom up.
  - b. Rinse from the top down.

## Drying the Motorcycle

1. Dry the surfaces from the top down using a SYNTHETIC DRYING CHAMOIS or a HOG BLASTER MOTORCYCLE DRYER. Avoid using any type of forced air on speakers or other sensitive components.
2. Dampen chamois in clean water and wring out the excess. The chamois is more absorbent when wet.
3. Wipe across the vehicle surface.
4. Repeat as necessary until surface is dry.

## Polishing and Sealing

### NOTE

*If motorcycle has denim finish, skip the Polishing and Sealing procedure.*

1. Apply GLAZE POLY SEALANT with a DISPOSABLE DETAILING SOFT CLOTH or MICROFIBER DETAILING CLOTH, following the instructions on the package.
2. Buff with a DISPOSABLE DETAILING SOFT CLOTH.
3. Polish and seal the wheels to prevent corrosion.

## LEATHER AND VINYL CARE

### NOTICE

**Do not use bleach or detergents containing bleach on saddlebags, seats, tank panels or painted surfaces. Doing so can result in equipment damage. (00229a)**

Do not use ordinary soap to clean leather or fur. It could dry or remove the oils from the leather.

Leather, vinyl and other synthetic surfaces must be periodically cleaned and treated to maintain its appearance and extend its life. Clean and treat these surfaces once a season or more frequently under adverse conditions.

These surfaces are not designed for long-term exposure to inclement weather. Protect these surfaces with a Harley-Davidson Seat Rain Cover or Motorcycle Storage Cover (sold separately).

1. Vacuum or blow dust off surface.
2. Thoroughly clean surfaces with SEAT, SADDLEBAG & TRIM CLEANER, following directions on the bottle.
3. Allow the material to dry naturally and completely at room temperature before applying other products to the material. Do not use artificial means to dry the material quickly.

4. For leather only, rejuvenate faded black surfaces with BLACK LEATHER REJUVENATOR, and apply LEATHER PROTECTANT to weatherproof and preserve the leather.

### NOTE

*Many Harley-Davidson accessories and seats are made of either treated or untreated leather or have leather inserts. Natural materials age differently and require different care than man-made materials. Seat covers and panels made of leather gain "character", such as wrinkles, with age. Leather is porous and organic. Each leather product settles into its own distinct form with use. Your leather product matures into its own custom shape and style from the sun, rain and time. This maturing is natural and enhances the custom quality of your Harley-Davidson motorcycle.*

## EXHAUST CARE

Allow exhaust components to cool before cleaning.

For chrome exhaust surfaces, apply Boot Mark Remover to remove boot marks, melted plastic or asphalt resin. Allow the gel to set for a few minutes, scrape off the melted material, and rinse clean.

For black-coated exhaust surfaces, apply Wheel & Tire Cleaner while motorcycle is wet during washing. Wipe or scrub exhaust surfaces and rinse clean.

### NOTE

*There is no warranty on exhaust pipes and mufflers with regard to any discoloration. Blueing is caused by tuning characteristics, cam timing, over-heating, and so on. It is not caused by defective manufacturing.*

## STORING MOTORCYCLE

If the motorcycle will not be operated for several months, take steps to protect the motorcycle. Always protect parts against corrosion, preserve the battery and prevent the build-up of gum and varnish in the fuel before storage.

Make a list of everything you do and fasten it to a handlebar grip. When you take the motorcycle out of storage, this list is your reference/checklist to get your motorcycle in operating condition.

### ▲ WARNING

**Do not store motorcycle with gasoline in tank within the home or garage where open flames, pilot lights, sparks or electric motors are present. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00003a)**

1. Fill fuel tank and add a gasoline stabilizer. Use one of the commercially available gasoline stabilizers and follow the manufacturer's instructions.
2. Warm motorcycle to operating temperature. Change oil and turn engine over to circulate the new oil. See Maintenance and Lubrication > Change Oil and Oil Filter (Page 144).
3. Prepare battery for storage. See Service Procedures > Battery Maintenance (Page 166).
4. To protect the body panels, engine, chassis and wheels from corrosion, follow the cosmetic care procedures before storage. See After Riding > Cleaning and General Care (Page 129).
5. Cover the motorcycle with a material such as light canvas that breathes. Plastic materials that do not breathe promote condensation and corrosion.

## MAINTENANCE

### ⚠ WARNING

Perform the service and maintenance operations as indicated in the regular service interval table. Lack of regular maintenance at the recommended intervals can affect the safe operation of your motorcycle, which could result in death or serious injury. (00010a)

### ⚠ WARNING

If you operate your motorcycle under adverse conditions (severe cold, extreme heat, very dusty environment, very bad roads, through standing water, etc.), you should perform the regular maintenance intervals more frequently to ensure the safe operation of your motorcycle. Failure to maintain your motorcycle could result in death or serious injury. (00094a)

Service your motorcycle at the regular service intervals. Road conditions like dust, rain or riding styles can require servicing the motorcycle at more frequent intervals. See Owner Manual > Service Intervals and Records (Page 217).

Though some of these procedures can be performed with a minimum of tools, always consult your Harley-Davidson dealer for updates. Remember, your authorized Harley-Davidson dealer always services your motorcycle with the latest factory approved methods and equipment.

Record each service to maintain the new motorcycle warranty. See Service Intervals and Records > Service Records (Page 217).

## BREAK-IN MAINTENANCE

### NOTE

*The performance of new motorcycle initial service is required to keep your new motorcycle warranty in force and for proper emissions system operation.*

After a new motorcycle has been ridden 1000 mi (1,600 km), visit an authorized Harley-Davidson dealer for initial service. Refer to Service Intervals and Records > Service Records (Page 217).

## PREPARING THE MOTORCYCLE FOR MAINTENANCE

### ⚠ WARNING

**Be sure to check capacity rating and condition of hoists, slings, chains and cables before use. Exceeding capacity ratings or using lifting devices that are in poor condition can lead to an accident, which could result in death or serious injury. (00466c)**

## Setting Motorcycle Upright

### NOTE

See Table 12.

- When moving motorcycle up a ramp, verify ramp will not contact oil drain plug.
- For models with less than 4.5 in (114 mm) of road clearance do not ride motorcycle up ramp.

1. Place motorcycle upright on a level surface or suitable lift, if available.
2. Verify that the motorcycle is level.
3. Secure with tie-downs.

## Lifting Motorcycle

### NOTE

- **RH1250S models:** to avoid damage, remove chin spoiler before lifting motorcycle. See Service Procedures > Chin Spoiler (Page 175).
- See Figure 54. When lifting motorcycle from underneath, always lift directly below crankshaft centerline with wood between motorcycle and lift.
- Always support a motorcycle that is being serviced with blocks or stands.

1. Place jack with block of wood below crankshaft centerline.
2. Raise motorcycle to allow servicing.

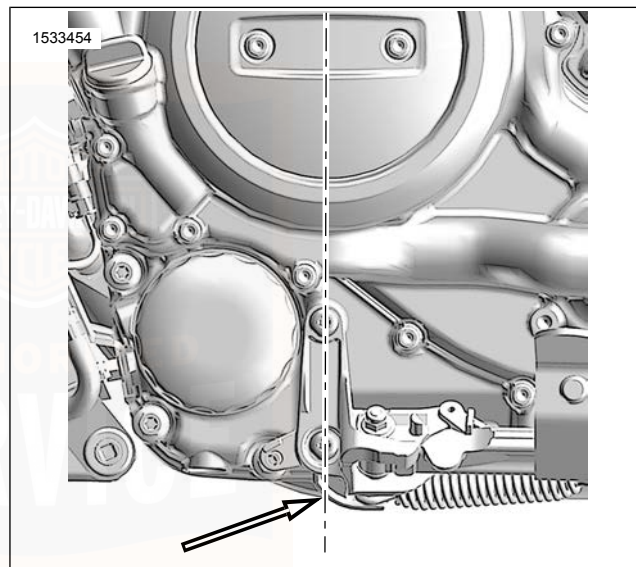


Figure 54. Crankshaft Centerline

## DISPOSAL AND RECYCLING

Help protect our environment! Many communities maintain facilities for recycling used fluids, plastics and metals. Dispose



of or recycle used oil, lubricants, fuel, coolant, brake fluid and batteries in accordance with local regulations. Many Harley-Davidson parts and accessories are made of plastics and metals which can also be recycled.

## ENGINE LUBRICATION

### Engine Lubrication

#### ⚠ CAUTION

**Prolonged or repeated contact with used motor oil may be harmful to skin and could cause skin cancer. Promptly wash affected areas with soap and water. (00358b)**

#### ⚠ CAUTION

**If engine oil is swallowed, do not induce vomiting. Contact a physician immediately. In case of contact with eyes, immediately flush with water. Contact a physician if irritation persists. (00357d)**

#### NOTICE

**Do not switch lubricant brands indiscriminately because some lubricants interact chemically when mixed. Use of inferior lubricants can damage the engine. (00184a)**

Always use the proper grade of oil for the lowest temperature expected before the next scheduled oil change. Refer to Table 42.

This motorcycle was originally equipped with GENUINE HARLEY-DAVIDSON SYN-BLEND MOTORCYCLE OIL 15W50. SYN-BLEND is the preferred oil under normal operating conditions. If operation under extreme cold or heat are expected, refer to Table 42 for alternative choices.

If necessary and SYN-BLEND, SYN3, or HD 360 is not available, add oil certified for diesel engines. Acceptable designations include: CH-4, CI-4 and CJ-4. The preferred viscosities, in descending order are: 20W50, 15W40 and 10W40.

At the first opportunity, see an authorized dealer to change back to 100 percent Harley-Davidson oil.

**Table 42. Recommended Engine Oils**

TYPE	VISCOSITY	LOWEST AMBIENT TEMPERATURE	COLD-WEATHER STARTS BELOW 50 °F (10 °C)
Harley-Davidson Genuine SYN-BLEND Motorcycle Lubricant	SAE 15W50	Above 30.2 °F (-1 °C)	Excellent
Screamin' Eagle SYN3 Full Synthetic Motorcycle Lubricant	SAE 20W50	Above 30.2 °F (-1 °C)	Excellent
Genuine Harley-Davidson H-D 360 Motorcycle Oil	SAE 20W50	Above 39.2 °F (4 °C)	Good

## Low Temperature Lubrication

Change engine oil often in colder climates. If motorcycle is frequently ridden less than 15 mi (24 km), in ambient temperatures below 60.8 °F (16 °C), reduce oil change intervals to 1,491½ mi (2,400 km).

### NOTE

*Lower ambient temperatures require more frequent oil changes.*

Water vapor is a normal by-product of combustion. During cold-weather operation, some water vapor condenses to liquid form on the cool surfaces inside the engine. In freezing weather, this water becomes slush or ice. If the engine is not warmed to operating temperature, accumulated slush or ice

blocks the oil lines and causes engine damage. Over time, water will accumulate, mix with the engine oil and form a sludge that is harmful to the engine.

If the engine is allowed to warm to normal operating temperature, most of the water evaporates and exits through the crankcase breather.

## CHECK ENGINE OIL LEVEL

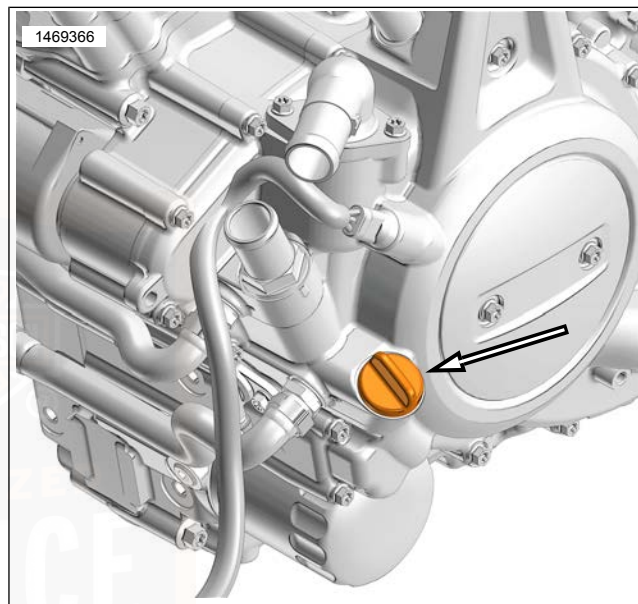
### NOTICE

**Do not allow hot oil level to fall below Add/Fill mark on dipstick. Doing so can result in equipment damage and/or equipment malfunction. (00189a)**

### NOTE

*Perform engine oil level hot check only with engine oil at normal operating temperature.*

1. Check engine oil hot.
  - a. Ride vehicle for more than 5 minutes at mid-range engine speeds or idle for 10 minutes on jiffy stand.
2. Rest bike on jiffy stand.
3. Check oil level.
  - a. See Figure 55. Remove filler plug/dipstick.
  - b. Wipe off the dipstick.
  - c. Insert the dipstick and tighten.
  - d. Remove filler plug/dipstick.
  - e. See Figure 56. Check oil level range (3). Oil level must register between full hot (1) and add quart (2) marks on the dipstick.



**Figure 55. Engine Oil Filler Plug/Dipstick**

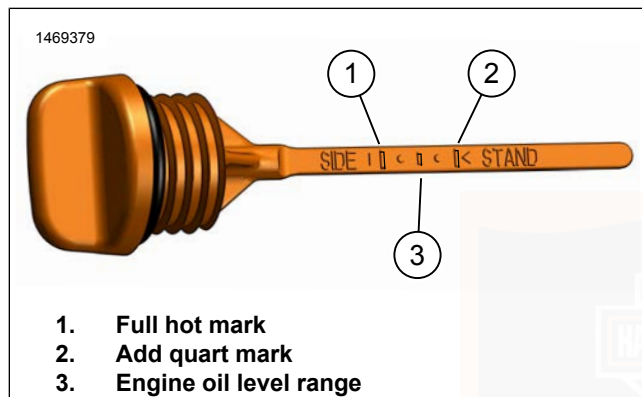


Figure 56. Engine Oil Dipstick (Vehicle Sidestand Gauge)

## CHANGE OIL AND OIL FILTER

### ⚠ WARNING

Be sure that no lubricants or fluids get on tires, wheels or brakes when changing fluid. Traction can be adversely affected, which could result in loss of control of the motorcycle and death or serious injury. (00047d)

### NOTICE

Do not switch lubricant brands indiscriminately because some lubricants interact chemically when mixed. Use of inferior lubricants can damage the engine. (00184a)

- Change engine oil at the first 1,000 mi (1,600 km) for a **new** engine. After the initial service, change oil at regular intervals in normal service at warm or moderate temperatures. See Service Intervals and Records > Service Records (Page 217).
  - Change oil at more frequent intervals in cold weather or severe operating conditions. See Maintenance and Lubrication > Engine Lubrication (Page 141).
1. Run motorcycle until engine is at normal operating temperature. Turn off engine.
  2. Rest bike on jiffy stand.

### NOTE

*Oil must be drained while on jiffy stand to ensure all oil is removed from oil pan.*

3. Remove left chin spoiler extension. See Service Procedures > Chin Spoiler (Page 175).
4. Remove filler plug/dipstick.
5. See Figure 57. Remove magnetic oil drain plug (2). Allow oil to drain completely.
  - a. Remove and discard O-ring (1).

6. Remove oil filter using special tool. Do **NOT** use air tools.

Special Tool: OIL FILTER WRENCH (HD-52991)

7. Clean oil filter mount flange.

8. Clean any residual oil from crankcase housing.

9. See Figure 58. Install **new** oil filter.

- a. Lubricate gasket with a thin film of clean engine oil.
- b. Fill new oil filter half full with engine oil.
- c. Install new oil filter.
- d. Hand-tighten oil filter three-quarters of a turn after gasket first contacts filter mounting surface. Do **NOT** use oil filter wrench for installation.

10. See Figure 57. Install **new** O-ring (1).

- a. Lubricate with clean engine oil.

11. Install magnetic oil drain plug (2). Tighten.

Torque: 15 ft-lbs (20 N·m) *Plug, magnetic oil drain*

12. Add an initial volume of engine oil. Refer to Table 43.

**Table 43. Initial Oil Fill**

ITEM	QUANTITY
Engine oil initial fill	2.5 qt (2.4 L)

13. Install filler plug/dipstick.

14. Run engine for 10 seconds.

15. Turn off engine and remove filler plug/dipstick.

16. See Figure 56. Add only enough oil to bring the level to the add quart mark (2).

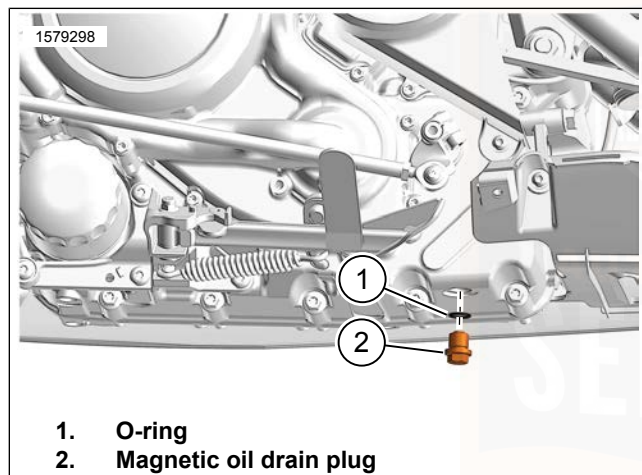
17. Verify proper oil level.

- a. Start engine and carefully check for oil leaks around drain plug and oil filter.
- b. Check engine oil level. Refer to Maintenance and Lubrication > Check Engine Oil Level (Page 142).

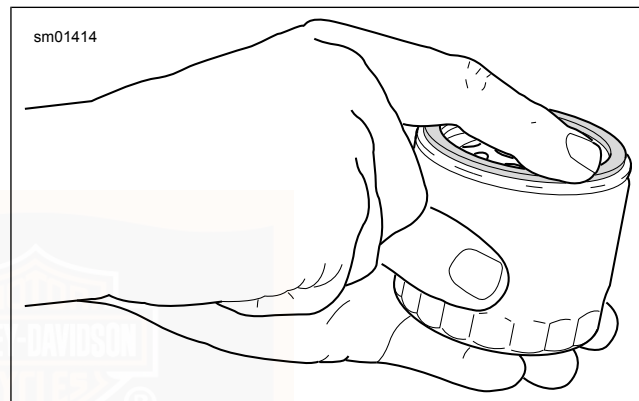
**NOTE**

*Engine oil level must be checked at normal operating temperature.*

18. If oil level is at or below the add quart mark, add only enough oil to bring the level to the full hot mark (1). Do not overfill.
19. Install left chin spoiler extension. See Service Procedures > Chin Spoiler (Page 175).

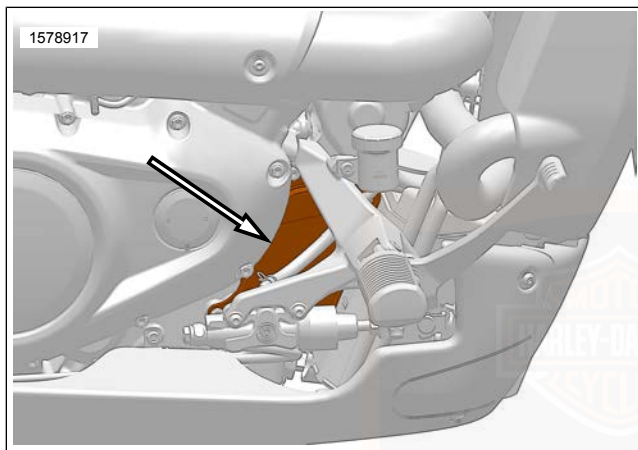


**Figure 57. Oil Drain Plug (Typical)**



**Figure 58. Lubricating New Oil Filter Gasket**  
**OIL COOLER**

After the oil filter, the oil is fed into the bottom of the LCOC (layered core oil cooler) mounted to the crankcase on the front right side of the engine. Under heavy load or high rpm operation, heat is transferred from the oil into the coolant. Under light load and cruising conditions, the oil temperature is regulated to the coolant temperature for optimal fuel efficiency and oil quality. Oil exits the top port of the LCOC and is returned into the crankcase.



**Figure 59. Oil Cooler Location (Typical)**

## INSPECTING BRAKE PADS AND DISCS

### Brake Pads

Harley-Davidson has provided your new motorcycle with the optimum brake pad friction material available. It is selected to give the best performance possible under dry, wet and high operating temperature conditions. It exceeds all regulatory requirements currently in effect. However, during some braking conditions you may experience noise. This is normal for this friction material.

### ⚠ WARNING

**Always replace brake pads in complete sets for correct and safe brake operation. Improper brake operation could result in death or serious injury. (00111a)**

1. Check the brake disc as it spins. The disc should run true in the brake caliper.
2. See Figure 60. Measure the thickness of the brake pad friction material.

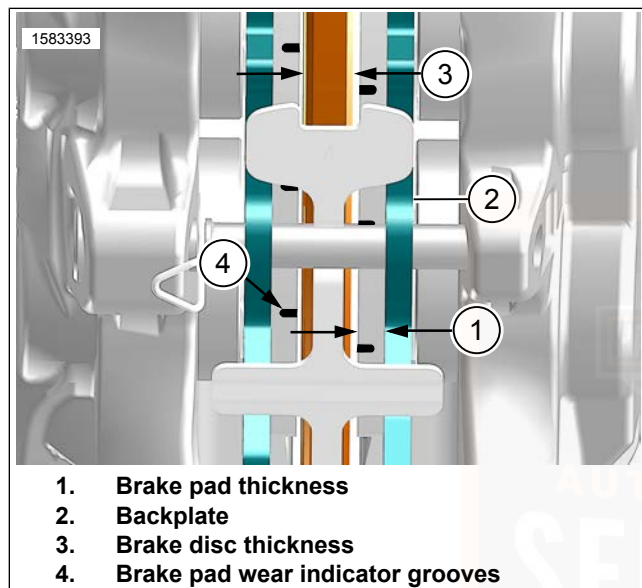
### NOTE

*The pads do not necessarily wear evenly. The grooves on the front brake pads are no longer visible when the pads are near the end of service life.*

3. Refer to Table 44. If the brake pad friction material is at the minimum thickness or less, replace the pads. Always replace brake pads in pairs. See a Harley-Davidson dealer.

**Table 44. Brake Specifications**

MINIMUM THICKNESS	All Models	
	mm	in
Front brake pads	0.4	0.016
Rear brake pads	0.45	0.018
Front brake disc	5.4	0.213
Rear brake disc	4.5	0.177



**Figure 60. Brake Thickness (front shown)**

## Brake Disc

1. Refer to Table 44. Check brake disc thickness and compare to value indicated in table.
2. Replace if necessary. See a Harley-Davidson dealer.

## CHECKING SYSTEMS FOR LEAKS OR ABRASIONS

Check all lines and hoses for leaks, damage or abrasions. Refer to Service Intervals and Records > Service Records (Page 217) for the appropriate intervals.

- Fuel system and fuel lines
- Engine cooling system and coolant lines
- Oil cooling system and oil lines
- Brake system and brake lines

## CHECKING BRAKE FLUID LEVEL AND CHANGING BRAKE FLUID

### NOTE

- *At every service, check moisture content of fluid using DOT 4 BRAKE FLUID MOISTURE TESTER (PART NUMBER: HD-48497-A). Follow the instructions included with tool.*
- *Flush brake system and replace DOT 4 fluid every two years or sooner if brake fluid test shows moisture content is 3% or greater.*
- *Do not add or remove fluid from the brake system to compensate for normal wear. Reservoir volume is adequate to provide fluid to the wear limits of the pads and discs.*



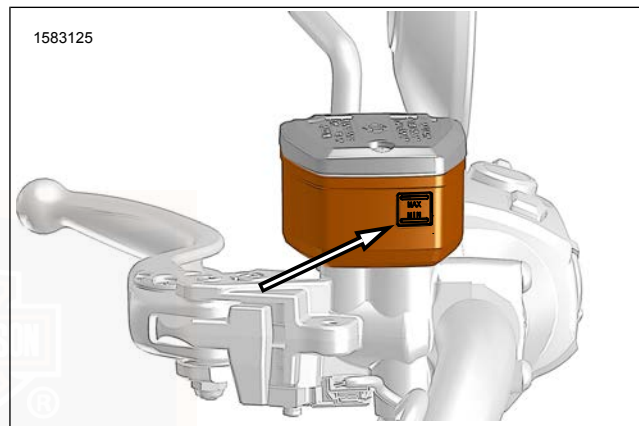
- Fluid level in reservoir will decrease with brake wear. If fluid level is low, check brake pads and discs for wear. See Maintenance and Lubrication > Inspecting Brake Pads and Discs (Page 147).

### ⚠ WARNING

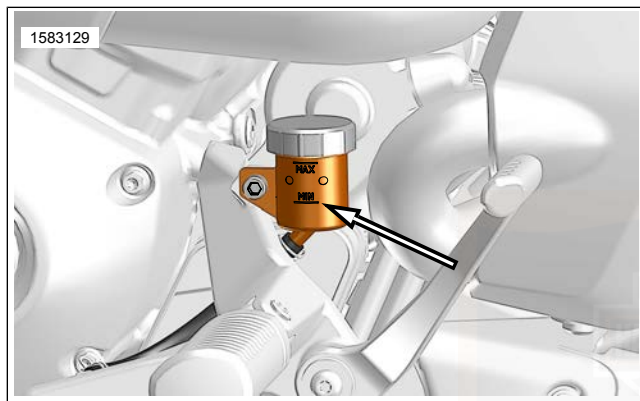
**Clean reservoir filler cap or cover before removing. Use only DOT 4 brake fluid from a sealed container. Contaminated fluid can adversely affect braking, which could result in death or serious injury. (13720a)**

## Checking Brake Fluid Level

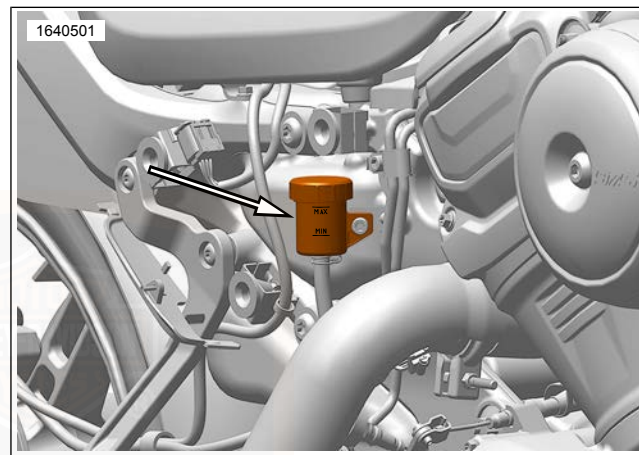
1. Set motorcycle upright. Verify that the fluid in the reservoir is level. See Maintenance and Lubrication > Preparing the Motorcycle for Maintenance (Page 139).
2. **Front:** See Figure 61. Check level on side of front brake reservoir. Level must be above minimum mark on side of reservoir.
3. **975 models:** Remove right side cover. See Service Procedures > Side Covers (Page 173).
4. **Rear:** See Figure 62 or Figure 63. Check level on side of rear brake reservoir. Level must be above minimum mark on side of reservoir.



**Figure 61. Front Master Cylinder Reservoir MIN Level**



**Figure 62. Rear Master Cylinder Reservoir MIN Level (1250 Models Typical)**



**Figure 63. Rear Master Cylinder Reservoir MIN Level (975 Models Typical)**

## Changing Brake Fluid

### ⚠ WARNING

Contact with DOT 4 brake fluid can have serious health effects. Failure to wear proper skin and eye protection could result in death or serious injury.

- If inhaled: Keep calm, remove to fresh air, seek medical attention.
- If on skin: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation develops, seek medical attention.
- If in eyes: Wash affected eyes for at least 15 minutes under running water with eye lids held open. If irritation develops, seek medical attention.
- If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Contact Poison Control. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at [sds.harley-davidson.com](https://sds.harley-davidson.com)

(00240e)

### ⚠ WARNING

DOT 4 brake fluid absorbs moisture from the atmosphere over time, changing the properties of the fluid. Check brake fluid moisture content at every service interval or annually (whichever comes first). Flush and replace the brake fluid every two years, or sooner if moisture content is 3% or greater. Failure to flush and replace fluid can adversely affect braking, which could result in death or serious injury. (06304b)

### NOTICE

DOT 4 brake fluid will damage painted and body panel surfaces it comes in contact with. Always use caution and protect surfaces from spills whenever brake work is performed. Failure to comply can result in cosmetic damage. (00239c)

To ensure the brake system is performing to design, check the moisture content of the brake fluid at every service interval or at least annually using DOT 4 BRAKE FLUID MOISTURE TESTER (PART NUMBER: HD-48497-A) following the instructions included with the tool. Flush DOT 4 fluid every 2 years or sooner if the brake system fluid test shows moisture content is 3% or greater.

Harley-Davidson recommends using Harley-Davidson Platinum Label DOT 4 Brake Fluid because of its superior moisture and corrosion inhibiting properties.

## CHECKING CLUTCH AND BRAKE CONTROLS

### Clutch Hand Lever

The clutch hand lever should move smoothly through its full range.

See a Harley-Davidson dealer for service.

### Brake Hand Lever

- The brake hand lever should move smoothly through its full range.
- Verify the brake hand lever has a firm feel when applied.

See a Harley-Davidson dealer for service.

## MISCELLANEOUS LUBRICATION

Refer to Service Intervals and Records > Service Records (Page 217) for all maintenance schedules.

### NOTE

*Use recommended SPECIAL PURPOSE GREASE for steering head bearings. Use a multipurpose chassis grease for other applications.*

1. Lubricate clutch control cable with HARLEY LUBE.
2. Lubricate front brake hand lever and clutch control hand lever at recommended service intervals.
3. Lubricate the steering head bearings with SPECIAL PURPOSE GREASE at recommended service intervals.
4. Lubricate the jiffy stand mechanism with SILVER GRADE ANTI-SEIZE.

### NOTE

*For model specific information regarding the chassis lubrication, see the service manual or a Harley-Davidson dealer.*

## CHECK DRIVE BELT DEFLECTION

### NOTE

*Always use the required special tool to measure belt deflection. Failure to use tension gauge may cause under-tensioned belts. Loose belts can fail due to "ratcheting" (jumping a tooth) which causes tensile cord crimping and breakage.*

Check belt deflection:

- With transmission in neutral.
- With motorcycle at ambient temperature.
- With motorcycle upright or on jiffy stand with rear wheel on the ground.
- With the vehicle unladen, no rider and no luggage.

**▲ WARNING**

**To prevent accidental vehicle start-up, which could cause death or serious injury, remove main fuse before proceeding. (00251b)**

### **Models Equipped With Belt Deflection Window**

1. Deactivate electrical system. See SECURITY SYSTEM > Disconnecting Power (Page 74).
2. See Figure 67. Measure belt deflection using:  
Special Tool: BELT TENSION GAUGE (HD-35381-A)
  - a. Slide o-ring (4) to zero mark (3).
  - b. Fit belt cradle (2) against bottom of drive belt in line with belt deflection window.

- c. Press upward on knob (6) until o-ring slides down to 10 lb (4.54 kg) mark (5) and hold steady.

3. See Figure 66. Measure belt deflection as viewed through belt deflection viewing window while holding gauge steady. Each deflection graduation is approximately 1.6 mm (1/16 in).
4. Compare with specifications. Refer to Table 45. If not within specifications, see a Harley-Davidson dealer.
5. Reactivate electrical system. See SECURITY SYSTEM > Disconnecting Power (Page 74).

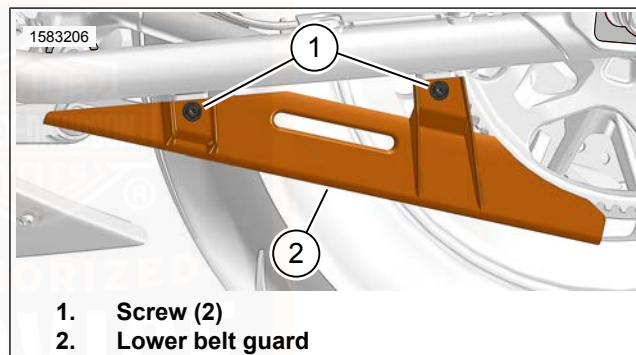
### **All Other Models**

1. Deactivate electrical system. See SECURITY SYSTEM > Disconnecting Power (Page 74).
2. See Figure 64. Remove lower belt guard.
  - a. Remove screws (1) and lower belt guard (2).
3. See Figure 67. Measure belt deflection using:  
Special Tool: BELT TENSION GAUGE (HD-35381-A)
  - a. Slide O-ring (4) to zero mark (3).

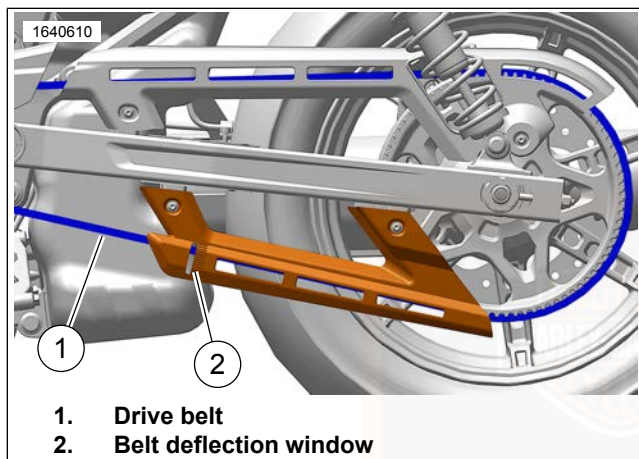
- b. Fit belt cradle (2) against bottom of drive belt halfway between drive pulleys.
  - c. Press upward on knob (6) until O-ring slides down to 10 lb (4.54 kg) mark (5) and hold steady.
4. See Figure 68. Measure amount of deflection (4) while holding gauge steady.
5. Compare with specifications. Refer to Table 45. If not within specifications, see a Harley-Davidson dealer.
6. See Figure 64. Install lower belt guard.
  - a. Place lower belt guard (2) in position.
  - b. Install screws (1). Tighten.  
Torque: 48.7–66.4 in-lbs (5.5–7.5 N·m) *Belt guard, lower, screw*
7. Reactivate electrical system. See SECURITY SYSTEM > Disconnecting Power (Page 74).

**Table 45. Drive Belt Deflection**

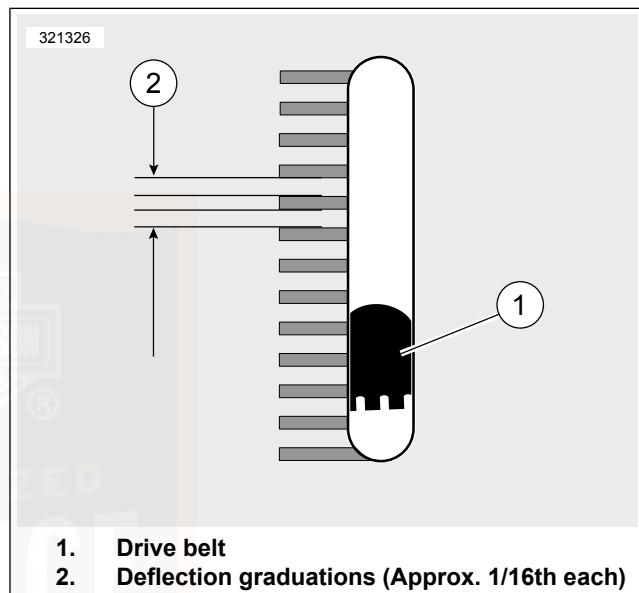
MODEL	DEFLECTION	
Service belt tension (RH1250) <sup>(1)</sup>	1/4-5/16	6.4-7.9
Service belt tension (RH975) <sup>(1)</sup>	5/16-3/8	7.9-9.5
(1) Deflection measured at 10 lb (4.5 kg) tension.		



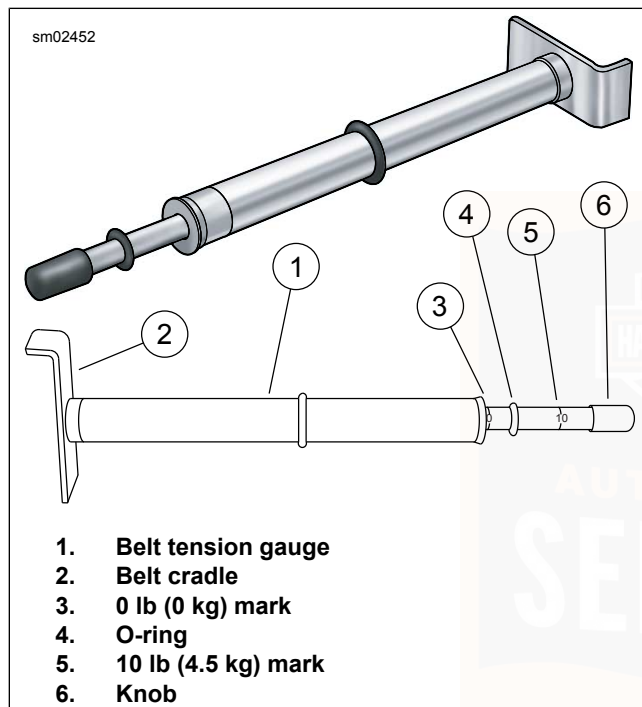
**Figure 64. Lower Belt Guard**



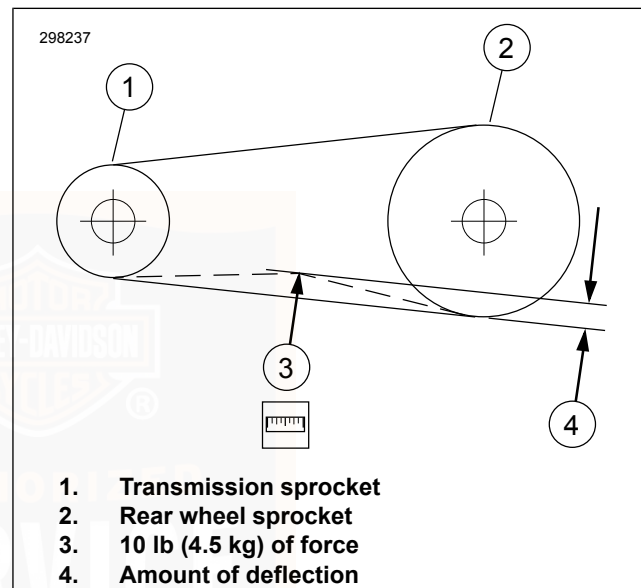
**Figure 65. Models With Belt Deflection Window**



**Figure 66. Belt Deflection Window**



**Figure 67. Belt Tension Gauge**



**Figure 68. Checking Belt Deflection**

## **MECHANICAL CLUTCH**

### **NOTICE**

The clutch control cable must be oiled and adjusted periodically to compensate for lining wear. Failure to oil and adjust the clutch control cable can result in equipment damage. (00203c)



### NOTE

*Perform maintenance more frequently in severe riding conditions. This includes extreme temperatures, dusty environments, mountainous or rough roads, long storage conditions, short runs or heavy stop/go traffic.*

Adjust the clutch control cable at specified intervals. Refer to Service Intervals and Records > Service Records (Page 217).

If the clutch slips under load or drags when released, the control cable may need to be adjusted or clutch service may need to be performed. See a Harley-Davidson dealer for service.

## COOLANT

### General

#### NOTICE

**Use only Genuine Harley-Davidson Extended Life Antifreeze and Coolant. Use of other coolants/mixtures may lead to motorcycle damage. (00179c)**

GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT is pre-diluted and ready to use full strength. It provides temperature protection to -34.0 °F (-36.7 °C). DO NOT add water.

#### NOTICE

**De-ionized water must be used with the antifreeze in the cooling system. Hard water can cause scale accumulation in water passages which reduces cooling system efficiency, leading to overheating and motorcycle damage. (00195b)**

#### ▲ WARNING

**Do not loosen or remove pressure cap when cooling system is hot. The cooling system is under pressure and hot coolant and steam can escape from pressure cap, which could cause severe burns. Allow motorcycle to cool before servicing the cooling system. (00091c)**

If GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT is unavailable, a mixture of de-ionized water and ethylene glycol-based antifreeze may be used. At the first opportunity, change back to GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT.

### Checking Coolant Level

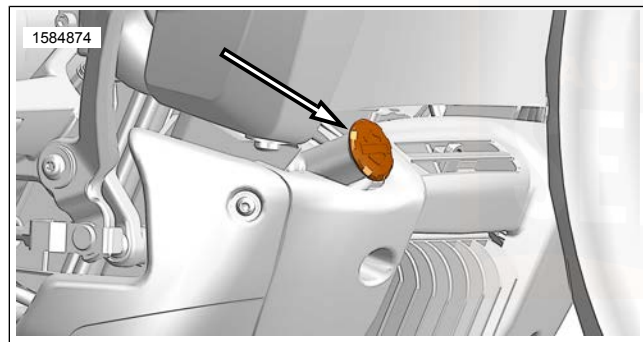
1. Position vehicle on level ground resting on the jiffy stand.
2. Allow motorcycle to cool.
3. Remove coolant plug/dipstick. See Figure 69.

4. See Figure 70. Check that coolant level is at the "MAX" line (2).

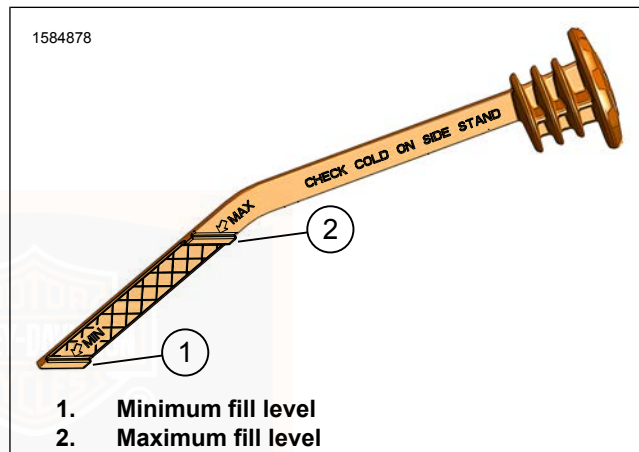
#### NOTE

*If the coolant reservoir is low when the motorcycle is cold, inspect the system for leaks. Repair as needed. Fill system with coolant and purge any trapped air.*

5. If level is below "MIN" line (1), add GENUINE HARLEY-DAVIDSON EXTENDED LIFE ANTIFREEZE AND COOLANT until fluid level reaches the "MAX" line (2).
6. Install coolant reservoir plug/dipstick. See Figure 69.



**Figure 69. Coolant Filler Cap/Dipstick (Typical)**



**Figure 70. Coolant Filler Cap/Dipstick**

## Checking Coolant Freeze Point

See a HARLEY-DAVIDSON dealer for coolant freeze point test.

## CLEANING RADIATOR

### ⚠ CAUTION

At operating temperature, radiators and oil coolers contain hot fluids. Contact with a radiator or oil cooler can result in minor or moderate burns. (00141b)

### NOTICE

Using a pressure washer to clean radiators or oil coolers can damage cooling fins and reduce airflow. Reduced airflow can lead to overheating, resulting in motorcycle damage. (00056c)

### NOTICE

Clean the inlet surface of the radiator regularly. Leaves and other debris can collect on the radiator surface and degrade radiator performance which could lead to overheating and motorcycle damage. (00197d)

1. See Figure 71. Clean debris from radiator fins.

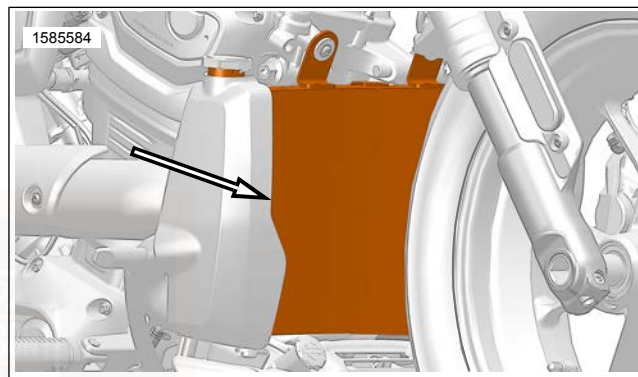


Figure 71. Radiator (Typical)

## REPLACING COOLANT

See a Harley-Davidson dealer for coolant replacement.

## MAINTAINING FRONT FORK

### ⚠ WARNING

Regularly inspect shock absorbers and front forks. Replace leaking, damaged or worn parts that can adversely affect stability and handling, which could result in death or serious injury. (00012a)

Rebound action of the fork will be impaired if the fork oil level is low.

If fork does not appear to be working properly or a significant oil leak should develop, see a Harley-Davidson dealer.

Have a Harley-Davidson dealer service the front forks at proper intervals.

Refer to Service Intervals and Records > Service Records (Page 217) for all maintenance schedules.

## ADJUSTING STEERING HEAD BEARINGS

### ⚠ WARNING

**Adjustments to steering head bearings should be performed by a Harley-Davidson dealer. Improperly adjusted bearings can adversely affect handling and stability, which could result in death or serious injury. (00051b)**

Refer to Service Intervals and Records > Service Records (Page 217) for all maintenance schedules.

See a Harley-Davidson dealer to adjust the steering head bearings.

## SHOCK ABSORBERS

Inspect shock absorbers and rubber bushings for leaks and bushing deterioration at proper intervals.

### ⚠ WARNING

**Shock absorber cannot be serviced. Attempting service can cause an explosion, which could result in death or serious injury. (00602d)**

- Do not refill, disassemble, puncture or expose shock to flames.
- Replacement and disposal should only be done by an authorized Harley-Davidson dealer.

## SPARK PLUGS

Refer to Service Intervals and Records > Service Records (Page 217) for all maintenance schedules.

See a Harley-Davidson dealer to perform spark plug service.

Do not re-use spark plugs. **New** spark plugs must be installed when serviced.

## INSPECTING AIR FILTER

Refer to Service Intervals and Records > Service Records (Page 217) for all maintenance schedules.

### NOTE

*Perform maintenance more frequently in severe riding conditions. This includes extreme temperatures, dusty*

*environments, mountainous or rough roads, long storage conditions, short runs, heavy stop/go traffic or poor fuel quality.*

## Inspecting Air Filter (Under Seat Fuel Tank)

### Removal

1. See Figure 72. Remove top cover.
  - a. Remove screw (1).
  - b. Lift rear of console (2) to remove.
  - c. Remove screws (3).
  - d. Remove top cover (4).
2. See Figure 73. Remove air box cover.
  - a. Disconnect connector (3).
  - b. Remove screws (1).
  - c. Remove air box cover (4).
3. See Figure 74. Remove air filter.
  - a. Cover velocity stacks (1) with clean rags.

- b. Loosen clamp (2).
- c. Remove air filter (3).

### Cleaning Filter Element

#### ⚠ WARNING

**Do not use gasoline or solvents to clean filter element. Flammable cleaning agents can cause an intake system fire, which could result in death or serious injury. (00101a)**

#### ⚠ WARNING

**Compressed air can pierce the skin and flying debris from compressed air could cause serious eye injury. Wear safety glasses when working with compressed air. Never use your hand to check for air leaks or to determine air flow rates. (00061a)**

#### NOTE

*Do not strike filter element on a hard surface to dislodge dirt.*

1. Wash the filter element in lukewarm water and mild detergent.

2. 

#### NOTE

*Do NOT use air cleaner filter oil on the Harley-Davidson air filter element.*

Allow filter element to air dry or use low-pressure compressed air from the inside of the filter.

3. **NOTE**

*The element is sufficiently clean when light is uniformly visible through the media.*

Hold the filter element up to a strong light to check progress.

4. Replace the filter element if the element cannot be adequately cleaned or if the element is damaged.

## Installation

1. See Figure 74. Install air filter.

- a. Install air filter (3).

**NOTE**

*Do not over tighten air filter clamp.*

- b. Tighten clamp (2). Tighten.

Torque: 22–24 **in-lbs** (2.5–2.7 N·m) *Air filter clamp*

- c. Vacuum or wipe out any debris in the air filter box.

- d. Remove rags from velocity stacks (1).

- e. Verify gasket (4) is in place. Replace gasket if damaged.

2. See Figure 73. Install air box cover.

**NOTE**

*When installing air box cover verify tab (2) is in position.*

- a. Install air box cover (4).

- b. Install screws (1). Tighten.

Torque: 22–27 **in-lbs** (2.5–3.1 N·m) *Air box cover screws*

- c. Connect connector (3).

3. See Figure 72. Install top cover.

- a. Install top cover (4).

- b. Install screws (3). Tighten.

Torque: 52–58 **in-lbs** (5.9–6.5 N·m) *Top cover screws*

- c. Position tabs on bottom of console (2) into slots on top cover and lower rear into place.

- d. Install screw (1). Tighten.

Torque: 27–35 **in-lbs** (3–4 N·m) *Console screw*

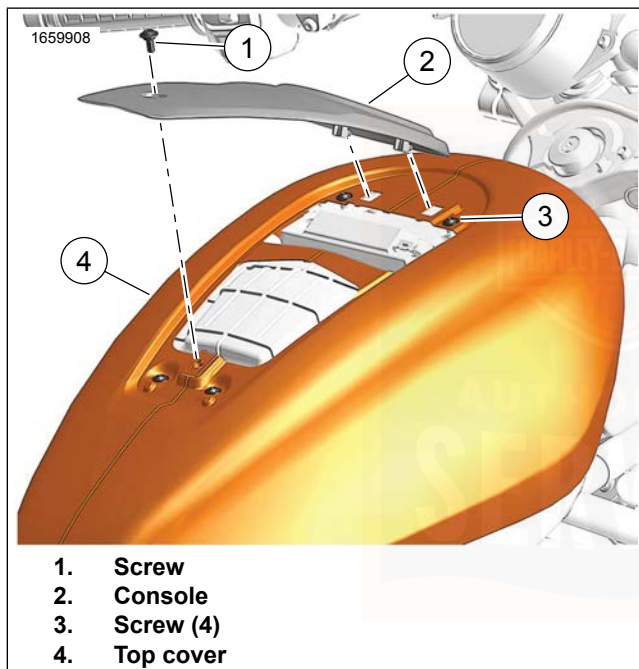


Figure 72. Top Cover

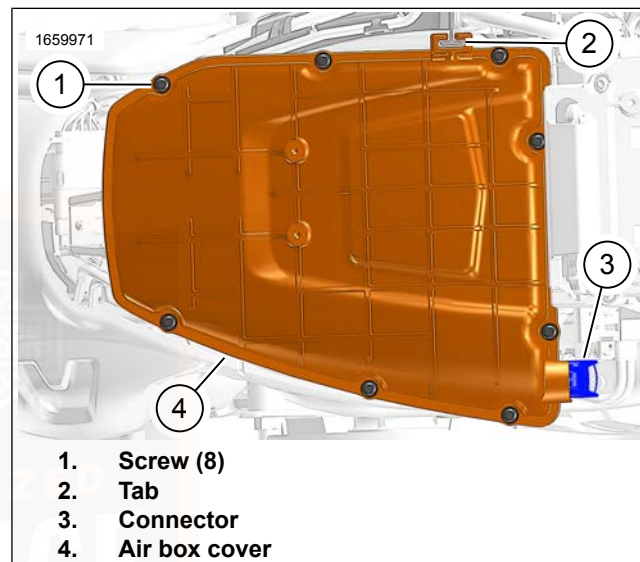
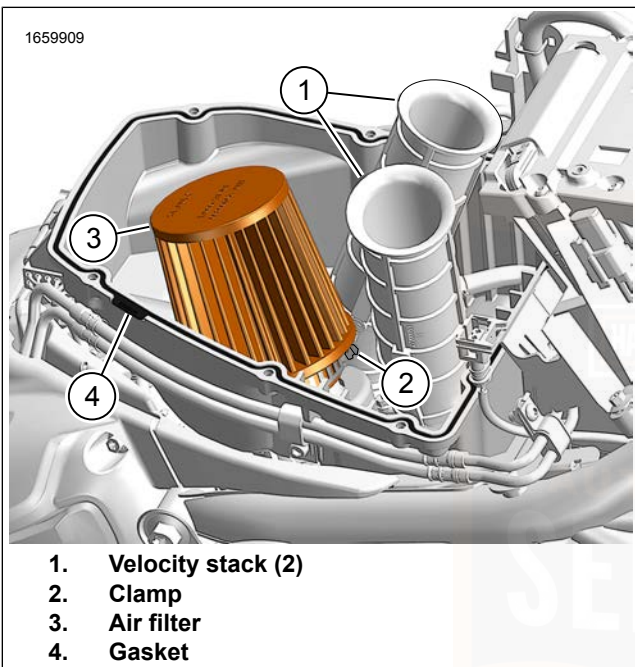


Figure 73. Air Box Cover

1659909



1. Velocity stack (2)
2. Clamp
3. Air filter
4. Gasket

**Figure 74. Air Filter Maintenance**

## **Inspecting Air Filter (Top Mounted Fuel Tank)**

See a Harley-Davidson dealer to perform air filter service.

## **LUBRICATING FUEL CAP LOCK**

Lubricate fuel cap lock with HARLEY LUBE.



## BATTERY TENDER CONNECTOR

See Figure 75 or Figure 76. Maintaining the battery between rides and while stored can maintain battery charge and extend the life of the battery. Connect the battery tender connector (2) to a battery tender during storage or to a battery charger if the battery voltage drops below specification. See Service Procedures > Battery Maintenance (Page 166).

See Service Procedures > Seat (Page 183). Remove the seat to access the connector. Remove the connector cap. Connect the battery through the connector to an automatic, constant monitoring battery charger/tender. The connector is compatible with all Harley-Davidson battery tender/chargers.

When removing the tender/charger, replace the connector cap to prevent moisture damage when not in use. Properly stow connector back under seat.

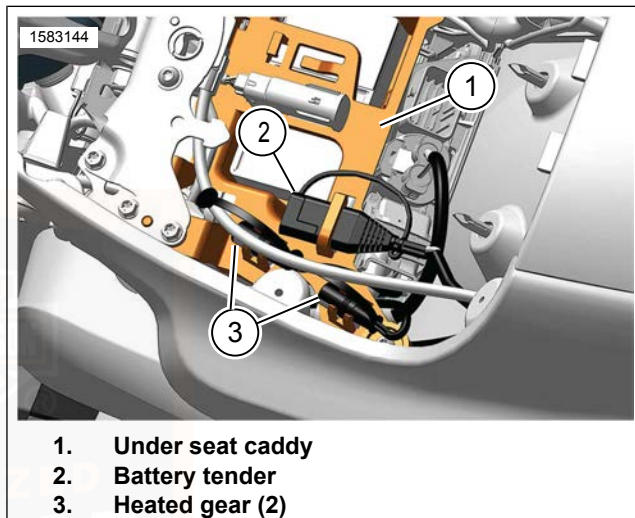


Figure 75. Under Seat (Top Mounted Fuel Tank)

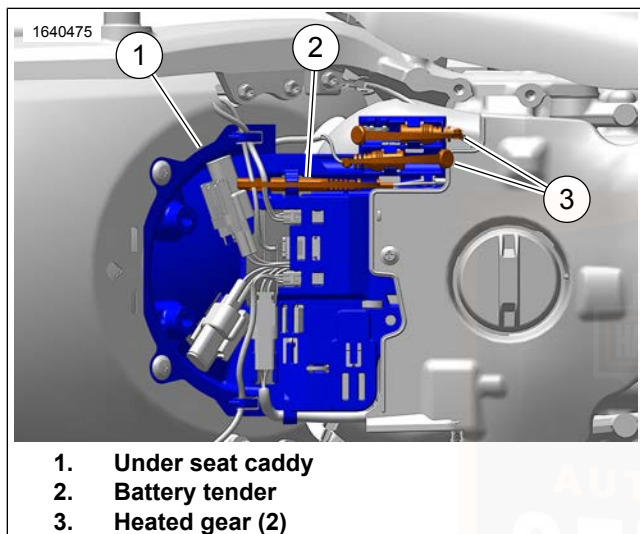


Figure 76. Under Seat (Under Seat Fuel Tank)

## BATTERY MAINTENANCE

### Battery Safety

#### ⚠ WARNING

Batteries contain sulfuric acid, which could cause severe burns to eyes and skin. Wear a protective face shield, rubberized gloves and protective clothing when working with batteries. **KEEP BATTERIES AWAY FROM CHILDREN.** (00063a)

#### ⚠ WARNING

Explosive hydrogen gas, which escapes during charging, could cause death or serious injury. Charge battery in a well-ventilated area. Keep open flames, electrical sparks and smoking materials away from battery at all times. **KEEP BATTERIES AWAY FROM CHILDREN.** (00065a)

#### ⚠ WARNING

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (00019e)

## **⚠ WARNING**

**Never remove warning label from battery. Failure to read and understand all precautions contained in warning, could result in death or serious injury. (00064b)**

### **Absorbed Glass Mat (AGM) Battery Charging Information**

The motorcycle has a permanently sealed, maintenance-free Absorbed Glass Mat (AGM) battery design that is superior to conventional flooded lead acid batteries. This battery design will provide many years of dependable service when the proper battery charging equipment and storage procedures are used. Because of the sealed, nonspillable battery design, an automatic, constant monitoring battery charger/tender with a charging rate of 5 amps or less at less than 14.6 volts is recommended to prevent overcharging conditions that will dry out the cells of the battery. Constant current battery chargers (including trickle chargers) are not recommended and can damage AGM batteries. Do not attempt to open the battery for any reason.

A Harley-Davidson constant monitoring battery charger or tender is recommended to maintain a full charge between rides or when your motorcycle will not be ridden for more than two weeks. The best practice is installing the charger/tender any time the motorcycle is not in use. Harley-Davidson offers a variety of fully automatic charger/tenders (North American

and international versions available). These battery charger/tenders include a quick disconnect cable, allowing easy connection to charge the battery without disassembly of the motorcycle.

Lack of regular battery charging or use of constant current battery chargers may void battery warranty.

### **Cleaning and Inspecting**

Battery top must be clean and dry. Dirt and electrolyte on top of the battery can cause battery to self-discharge.

1. Clean top of battery.
2. Clean cable connectors and battery terminals using a wire brush or fine grit sandpaper to remove any oxidation.
3. Inspect and clean the battery screws, clamps and cables. Check for breakage, loose connections and corrosion.
4. Check the battery posts for melting or damage caused by over-tightening.
5. Inspect the battery for discoloration, a raised top or a warped or distorted case. Any of these conditions indicate that the battery has been frozen, overheated or overcharged.
6. Inspect the battery case for cracks or leaks.

## Charging and Storing the Battery

A battery that is left in the motorcycle can either self-discharge or discharge from parasitic loads. Parasitic loads occur from things like diode leakage and maintaining computer memory. A battery that is removed from the motorcycle can also self-discharge. It is not necessary to remove battery from vehicle for storage.

- Batteries self-discharge at a faster rate at higher ambient temperatures.
- To reduce the self-discharge rate, store battery in a cool, dry place.

An automatic, constant monitoring battery charger/tender with a charging rate of 5 amps or less at less than 14.6 volts is recommended. The use of constant current chargers (including trickle chargers) to charge sealed AGM batteries is not recommended. Any overcharge will cause dry-out and premature battery failure. Never charge a battery without first reviewing the instructions for the charger being used. In addition to the manufacturer's instructions, follow the general safety precautions.

Charge the battery when:

- Motorcycle lights appear dim.
- Electric starter sounds weak.
- Battery has not been used for two weeks or more.

168 Service Procedures

### ⚠ WARNING

**Unplug or turn OFF battery charger before connecting charger cables to battery. Connecting cables with charger ON can cause a spark and battery explosion, which could result in death or serious injury. (00066a)**

### NOTE

*Make sure that the ignition and all electrical accessories are turned off.*

*Always follow charging instructions supplied with the charger/tender.*

1. With battery in the motorcycle.
  - a. Connect battery charger/tender lead to motorcycle battery tender connector. See Service Procedures > Battery Tender Connector (Page 165).
  - b. When charging is completed turn OFF the charger. Disconnect the motorcycle battery tender connector.
2. With battery removed from motorcycle.
  - a. Place the battery on a level surface.

- b. Connect battery charger/tender lead to battery connector adapter lead supplied with the battery charger/tender.

#### NOTICE

**Do not reverse the charger connections described in the following steps or the charging system of the motorcycle could be damaged. (00214a)**

- c. Connect the red battery charger lead to the positive terminal of the battery.
- d. Connect the black battery charger lead to the negative terminal of the battery.
- e. Step away from the battery and turn on the charger.

#### ⚠ WARNING

**Unplug or turn OFF battery charger before disconnecting charger cables from battery. Disconnecting clamps with charger ON can cause a spark and battery explosion, which could result in death or serious injury. (00067a)**

- f. When charging is completed turn OFF the charger. Disconnect the black battery charger lead. Disconnect the red battery charger lead.

## BATTERY REPLACEMENT

### Removing Battery

1. Remove chin spoiler. See Service Procedures > Chin Spoiler (Page 175).
  - a. Remove left chin spoiler extension.
  - b. Remove right chin spoiler extension.
  - c. Remove chin spoiler.
2. See Figure 77. Remove battery negative cable (2) from battery (1).
3. Remove battery positive cable (3) from battery.
4. See Figure 78. Remove starter cable (1) from starter solenoid (2).
5. See Figure 79. Remove voltage regulator bracket screws (2).
6. See Figure 80. Position voltage regulator bracket (2) out of way.

7. Remove battery (1).

## Installing Battery

### ⚠ WARNING

**Connect positive (+) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00068a)**

### NOTICE

**Connect the cables to the correct battery terminals. Failure to do so could result in damage to the motorcycle electrical system. (00215a)**

1. Install battery.
2. See Figure 79. Position voltage regulator bracket (1).
3. Install voltage regulator bracket screws (2). Tighten.  
Torque: 35–62 **in-lbs** (4–7 N·m)
4. See Figure 77. Install battery positive cable (3) to battery. Tighten.  
Torque: 60–70 **in-lbs** (6.8–7.9 N·m)

5. Install battery negative cable (2) to battery. Tighten.  
Torque: 60–70 **in-lbs** (6.8–7.9 N·m)
6. See Figure 78. Install starter cable (1) to starter solenoid (2). Tighten.  
Torque: 27–41 **in-lbs** (3–4.6 N·m)
  - a. See Figure 81. Route starter cable (2) in bracket (1).
7. Install chin spoiler. See Service Procedures > Chin Spoiler (Page 175).
  - a. Install chin spoiler
  - b. Install right chin spoiler extension.
  - c. Install left chin spoiler extension.

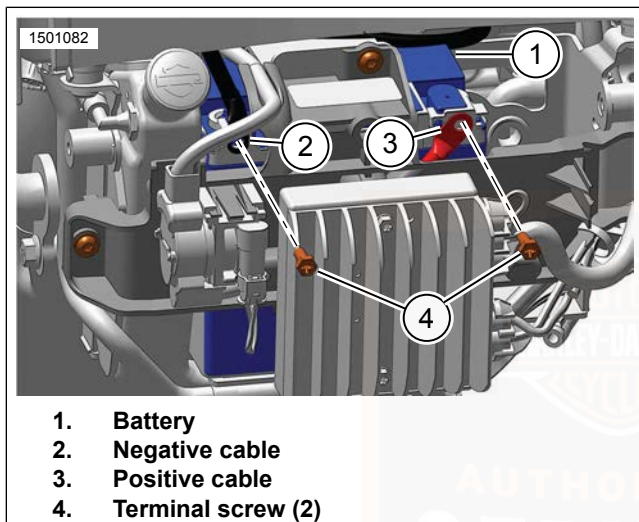


Figure 77. Battery Cables

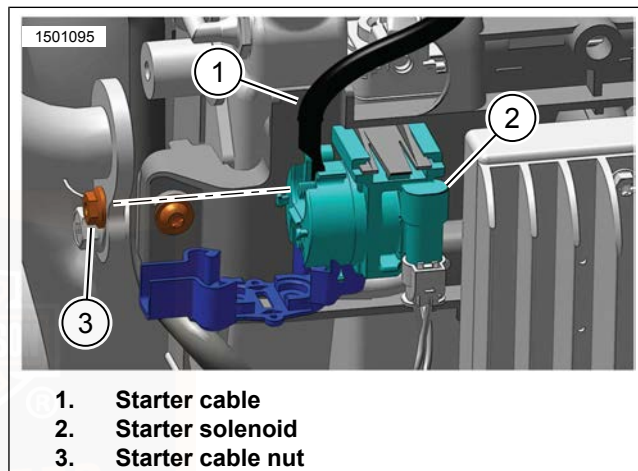
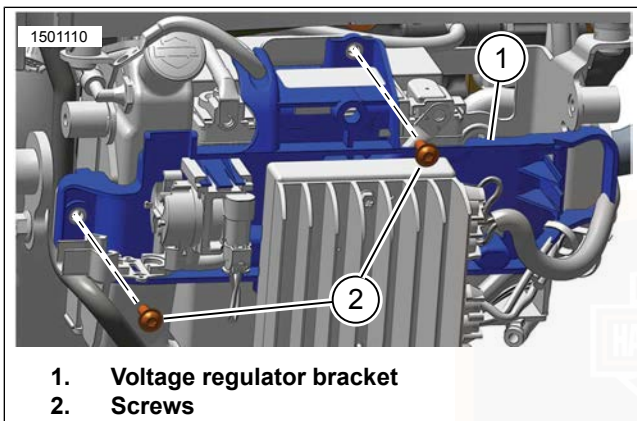
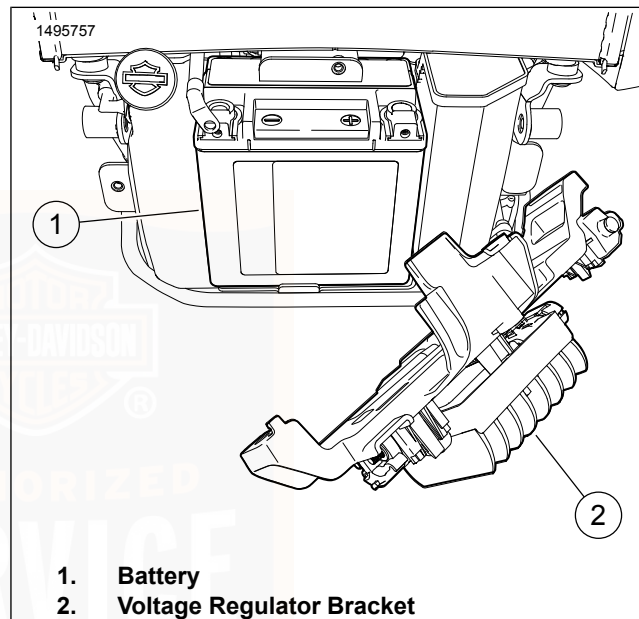


Figure 78. Starter Cable



**Figure 79. Voltage Regulator Bracket Screws**



**Figure 80. Voltage Regulator Bracket**



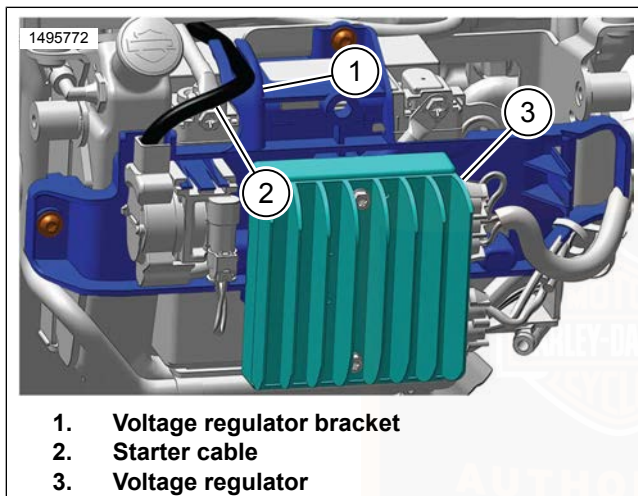


Figure 81. Negative Cable Bracket

## SIDE COVERS

### Left Side Steering Head Cover

#### Remove

1. See Figure 82. Remove screw (1).
2. Tip side cover (2) out slightly while lifting up.

#### Install

1. Align tabs on side cover (2) with mounting holes on vehicle. While holding right side steering head cover in place, secure side cover with screw (1).

2. Tighten screw.

Torque: 7–11 **in-lbs** (0.8–1.2 N·m) *Screw, steering head cover*

### Right Side Steering Head Cover

#### Remove

#### NOTE

*Right side steering head cover is held in place by the steering head cover screw.*

1. Remove left side steering head cover.
2. Tip right side cover out slightly while lifting up.

#### Install

1. Align tabs on right side cover with mounting holes on vehicle.

2. Install left side steering head cover.

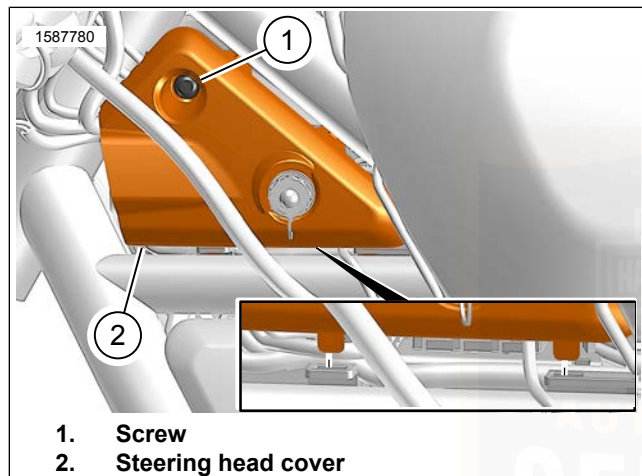


Figure 82. Steering Head Cover (left side typical)

## Left Side Cover (1250 Models Typical)

### Remove

1. See Figure 83. Pull left side cover (1) with clips (2) away from vehicle.

## Install

1. **NOTE**  
*Verify clips (2) are in place on left side cover (1) prior to install.*

Place left side cover in position.

2. Push left side cover into position.

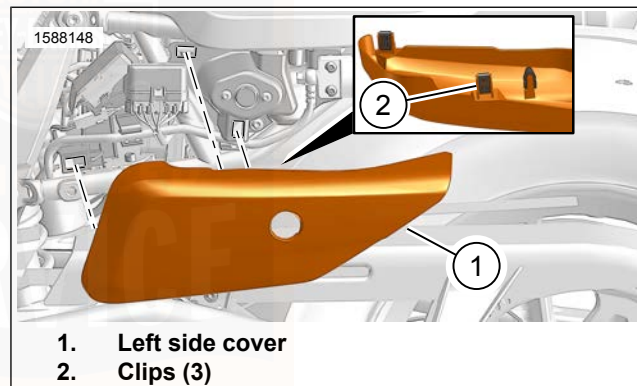


Figure 83. Left Side Cover (RH1250S)

## Right Side Cover (RH975 Models Typical)

### Remove

#### NOTE

Grommets should stay in frame when removing right side cover.

1. See Figure 84. Pull right side cover (1) away from vehicle.

### Install

1. See Figure 84. Verify grommets (2) are in place on frame.
2. Place right side cover (1) in position.
3. Push right side cover into position.

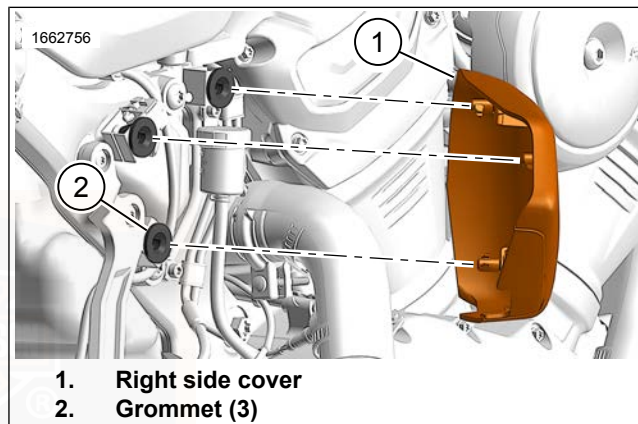


Figure 84. Right Side Cover (RH975)

## CHIN SPOILER

### Chin Spoiler Left Extension

#### Remove

1. See Figure 85 and Figure 86. Remove screws (2).
2. Remove chin spoiler left extension (1).

## Install

1. See Figure 85 and Figure 86. Install chin spoiler left extension (1).
2. Install screws (2). Tighten.

Torque: 62.0–79.7 **in-lbs** (7–9 N·m) *Screw, chin spoiler left extension*

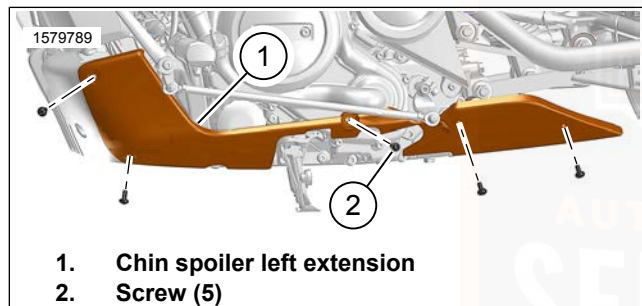


Figure 85. Chin Spoiler Left Extension (Long)

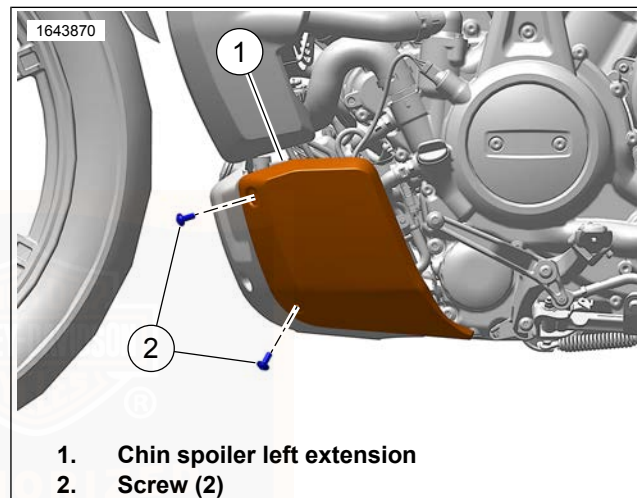


Figure 86. Chin Spoiler Left Extension (Short)

## Chin Spoiler Right Extension

### Remove

1. See Figure 87 and Figure 88. Remove screws (2).
2. Remove chin spoiler right extension (1).

## Install

1. See Figure 87 and Figure 88. Install chin spoiler right extension (1).
2. Install screws (2). Tighten.

Torque: 62.0–79.7 **in-lbs** (7–9 N·m) *Screw, chin spoiler right extension*

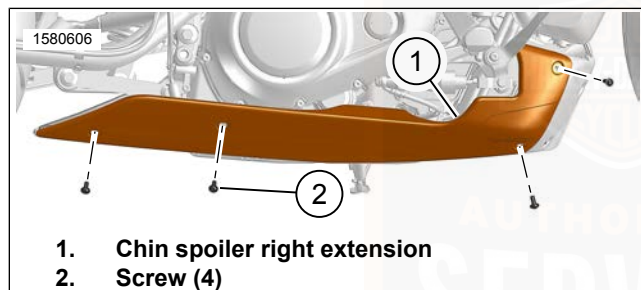


Figure 87. Chin Spoiler Right Extension (Long)

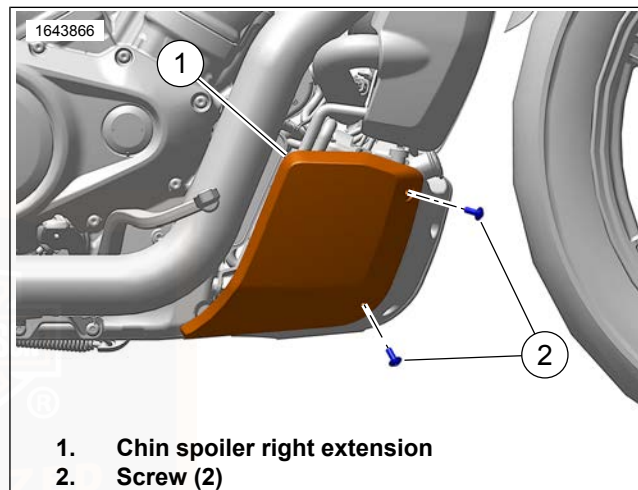


Figure 88. Chin Spoiler Right Extension (Short)

## Chin Spoiler

### Remove

1. Remove chin spoiler left extension.
2. Remove chin spoiler right extension.
3. See Figure 89. Remove screws (2).

4. Remove chin spoiler (1).

## Install

1. See Figure 89. Install chin spoiler (1).

2. Install screws (2). Tighten.

Torque: 62.0–79.7 **in-lbs** (7–9 N·m) *Screw, chin spoiler*

3. Install chin spoiler right extension.

4. Install chin spoiler left extension.

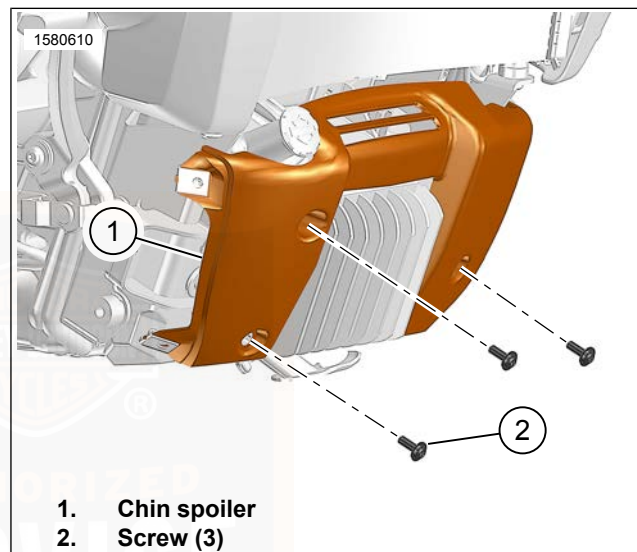


Figure 89. Chin Spoiler

## HEADLAMP

### ⚠ WARNING

The automatic-on headlamp feature provides increased visibility of the rider to other motorists. Be sure headlamp is on at all times. Poor visibility of rider to other motorists can result in death or serious injury. (00030b)

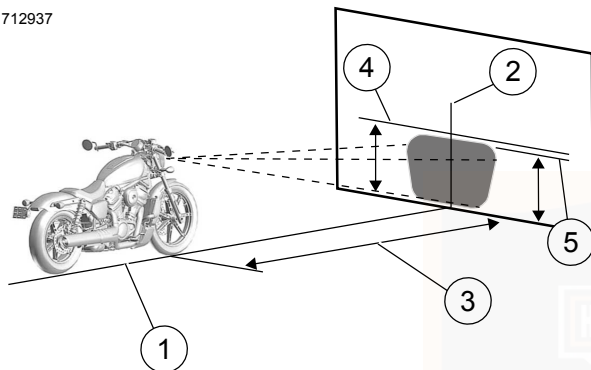
## Prepare

1. Check tire pressure.
  2. Adjust suspension preload. Preload adjustments will vary by model. Refer to Before Riding > Suspension Adjustments (Page 51).
    - a. **Nightster (RH975):** Adjust suspension preload for a 165 lb (75 kg) rider.
    - b. **Sportster S (RH1250S):** Adjust suspension preload for rider and intended load.
  3. Fill fuel tank or add an equal amount of ballast.
- b. **Sportster S (RH1250S):** See Figure 91. Set vehicle distance from wall to front axle (3). Distance: 25 ft (7.6 m)
  3. Draw a vertical line (2) on wall.
  4. Point the front wheel straight forward at wall.
  5. Measure distance (4) from floor to center of headlamp.
  6. With the low beam activated, verify headlamp alignment.
    - a. **Nightster (RH975):** See Figure 90. top of low beam aligns with cut-off line (5)

## Check Alignment

1. See Figure 90 or Figure 91. Park the motorcycle on a line (1) perpendicular to the wall.
  2. Set vehicle distance from wall
    - a. **Nightster (RH975):** See Figure 90. Set vehicle distance from wall to front lens of the headlamp (3). Distance: 16.4 ft (5.0 m)
7. Adjust headlamp, if necessary.

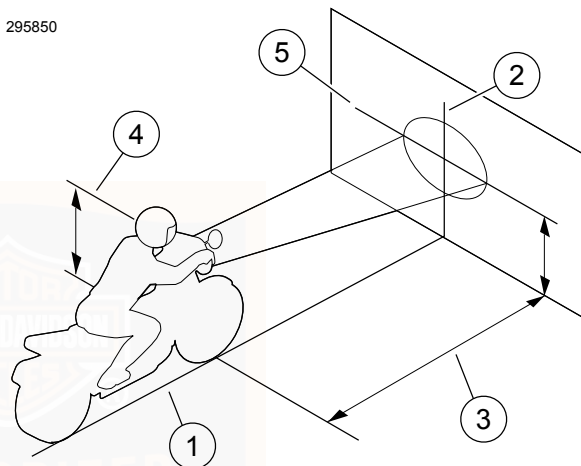
1712937



1. Perpendicular line
2. Vertical line
3. 16.4 ft (5 m)
4. Headlamp centerline: With 75kg rider 33.5 in (850 mm)
5. Cut-off line: With 75kg rider 32.5 in (825 mm)

**Figure 90. Checking Headlamp Alignment (RH975)**

295850



1. Perpendicular line
2. Vertical line
3. 25 ft (7.6 m)
4. Headlamp centerline
5. Horizontal line 2.6 in (6.65 cm) lower than centerline

**Figure 91. Checking Headlamp Alignment (RH1250S)**



## Adjustment

### NOTE

See Figure 92. Some models are equipped with headlamp adjustment tool.

1. **Nightster Special (RH975S):** See Figure 94. Remove speed screen (1).
  - a. Pull speed screen forward to release posts (3).
2. Remove seat. Refer to Service Procedures > Seat (Page 183).
3. See Figure 92. **If equipped:** Remove headlight adjustment tool from bottom of seat.
4. See Figure 93 or Figure 94. Loosen screws on left and right sides of headlamp.
5. Set vertical adjustment.
6. Tighten screws on left and right sides of headlamp.  
Torque: 71–89 **in-lbs** (8–10 N·m) *Headlamp screw*
7. **If equipped:** Install headlamp adjustment tool in bottom of seat.

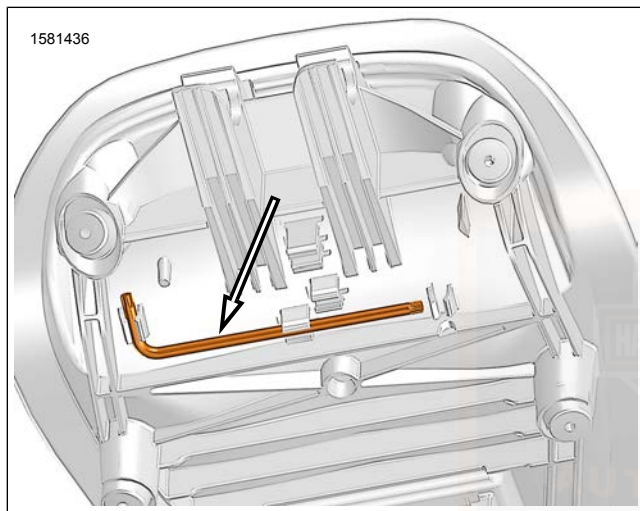
8. Install seat. Refer to Service Procedures > Seat (Page 183).

9. **Nightster Special (RH975S):** See Figure 94. Install speed screen (1).

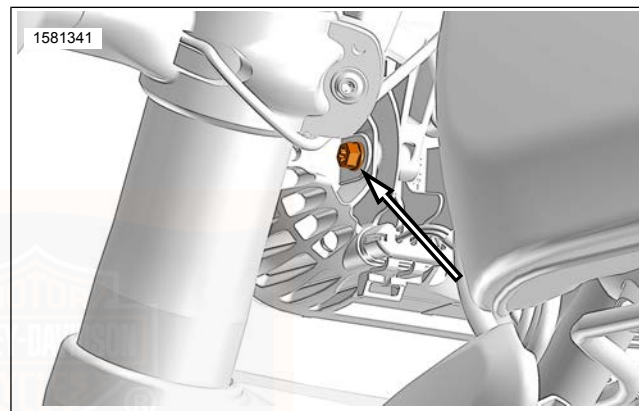
### NOTE

Verify grommets (3) are in place on motorcycle prior to install.

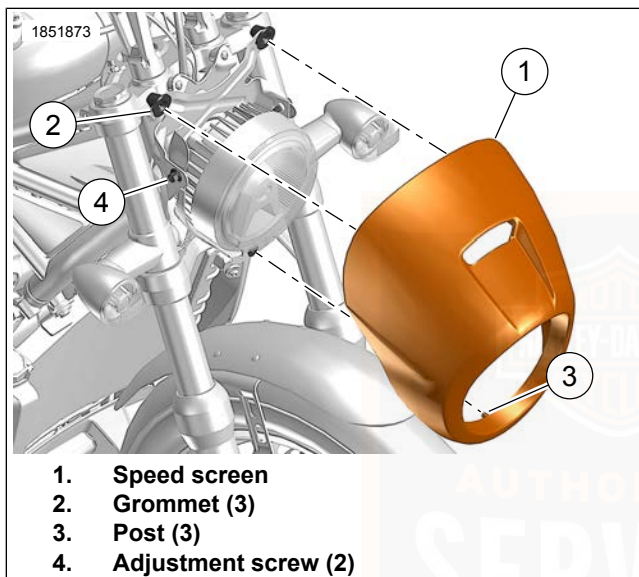
- a. Align posts (3) with grommets (2) and push until posts are fully engaged.



**Figure 92. Headlight Adjustment Tool (If Equipped)**



**Figure 93. Headlight Adjustment Screw: RH1250S (left side shown)**



**Figure 94. Headlight Adjustment Screw: RH975S**

## Replacing Headlamp

The headlamp contains no replaceable bulbs. The entire assembly must be replaced upon failure. See a Harley-Davidson dealer for service.

## TAIL LAMP BULB REPLACEMENT: LED

The tail lamp is a Light Emitting Diode (LED) assembly. Replace the tail lamp as a unit. See a Harley-Davidson dealer.

## TURN SIGNAL BULB REPLACEMENT: LED

The LED turn signal lamp is a sealed assembly. Replace the turn signal lamp as a unit. See a Harley-Davidson dealer.

## SEAT

### Removal (RH1250S)

1. See Figure 95. Insert key in seat lock (1).
2. Turn key to release seat.
3. Lift up front of seat (2) and move forward to remove.

### Installation (RH1250S)

1. See Figure 95. Lower rear of seat (2) into position.
2. Engage rear of seat with frame.
3. Press front of seat down until a click is heard.
4. Pull up on the seat to verify it is secure.

## Open (RH975/S)

1. See Figure 96. Insert key in seat lock (3).
2. Turn key to open seat.

## Close (RH975/S)

1. See Figure 96. Push down on seat to make sure latch is engaged.

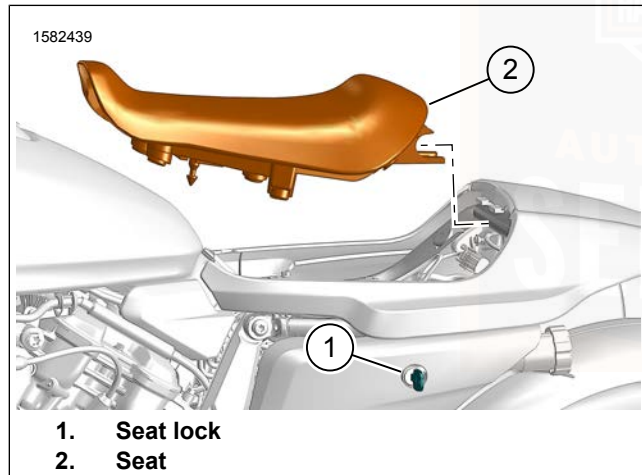


Figure 95. Seat

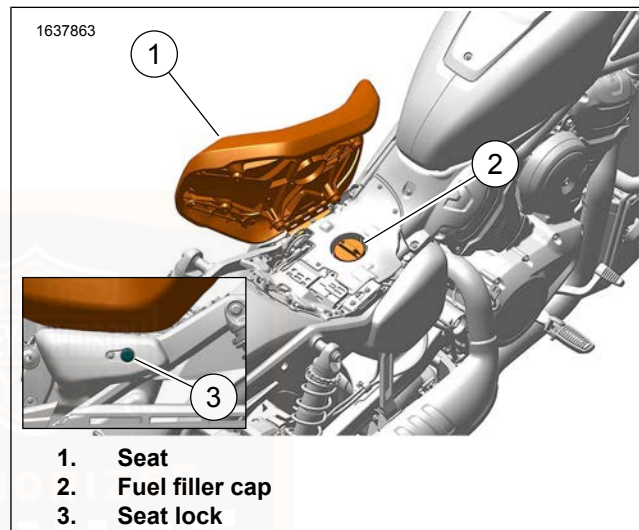


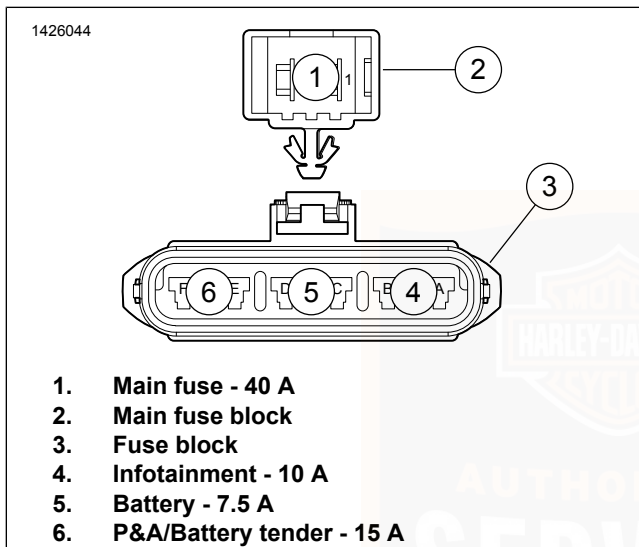
Figure 96. Fuel Fill (Under Seat Fuel Tank)

## FUSES

For electrical problems, see a Harley-Davidson dealer that has the necessary parts and equipment to perform electrical services.

### NOTE

- Fuses do not reset.
- Only replace a fuse with a fuse of the same rating.



**Figure 97. Fuse Blocks and Socket Terminals**

## Main Fuse

### NOTE

*The amperage of the main fuse is 40 A.*

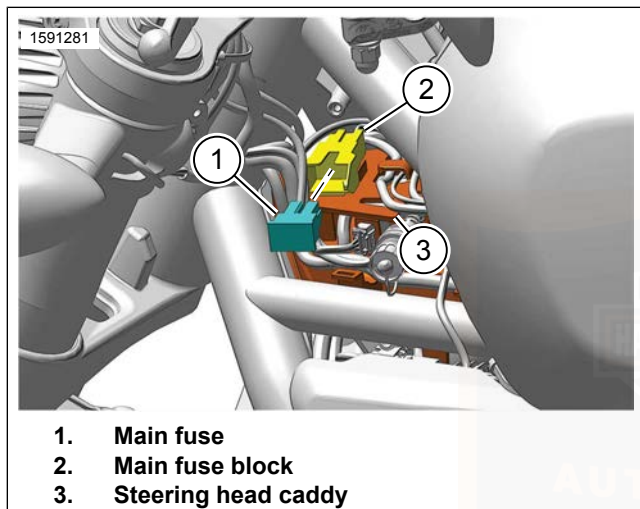
The main fuse is located under the left steering head cover. Remove main fuse whenever performing maintenance on the motorcycle.

## Remove

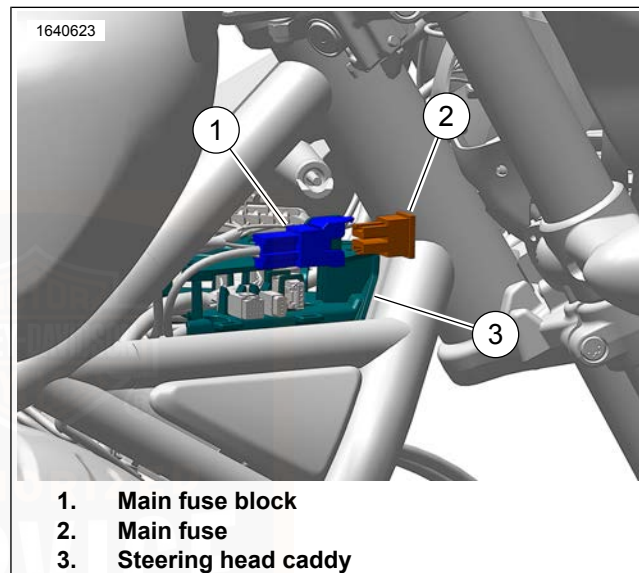
1. Set OFF/RUN switch to Off.
2. Remove steering head covers. See Service Procedures > Side Covers (Page 173).
3. See Figure 98 or Figure 99. Remove main fuse block from steering head caddy (3).
4. Remove main fuse.

## Install

1. See Figure 98 or Figure 99. Install main fuse.
2. Install main fuse block into steering head caddy (3).
3. Install steering head covers. See Service Procedures > Side Covers (Page 173)



**Figure 98. Main Fuse Location (RH1250S)**



**Figure 99. Main Fuse Location (RH975/S)**

## Fuse Block

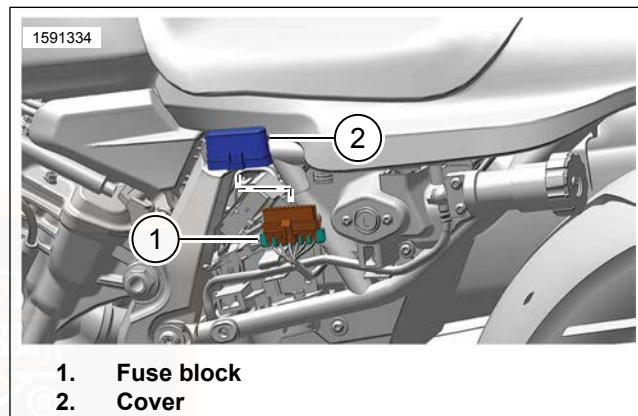
See Figure 100 or Figure 101. The fuse block is located under left side cover.

## Remove

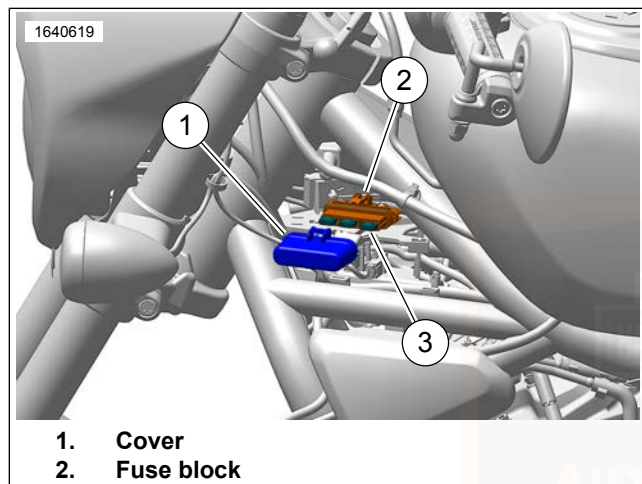
1. Set OFF/RUN switch to Off.
2. Remove left side cover. See Service Procedures > Side Covers (Page 173)
3. See Figure 100 or Figure 101. Remove cover from fuse block.
4. Remove suspect fuse and inspect element.
  - a. Verify that suspect fuse is open.
5. Replace fuse as needed.

## Install

1. See Figure 100 or Figure 101. Install fuse block cover.
  - a. Verify tabs snap into fuse block.
2. Install left side cover. See Service Procedures > Side Covers (Page 173).



**Figure 100. Fuse Block Location (RH1250S)**



**Figure 101. Fuse Block Location (RH975/S)**



## TROUBLESHOOTING: GENERAL

### ⚠ WARNING

The troubleshooting section of the Owner's Manual is a guide to diagnose problems. Read the service manual before performing any work. Improper repair and/or maintenance could result in death or serious injury. (00080a)

Use the following checklists for troubleshooting. Carefully check each cause because more than one condition can cause trouble.

## ENGINE

### Starter Does Not Operate or Does Not Turn Engine Over

1. Engine OFF/RUN switch is off.
2. Discharged battery or loose or corroded connections (solenoid chatters).
3. Clutch lever not squeezed against handlebar or transmission not in neutral.
4. Jiffy stand not in retracted position (for models equipped with jiffy stand interlock).
5. Blown fuse.

### Engine Turns Over But Does Not Start

1. Fuel tank empty.
2. Fuel filter clogged.
3. Discharged battery or loose or damaged battery terminal connections.
4. Fouled spark plugs.
5. Spark plug cable connections loose or in bad condition and shorting.
6. Loose or corroded wire or cable connection at coil or battery.
7. Fuel pump inoperative.
8. Blown fuse.

### Starts Hard

1. Spark plugs in bad condition, have improper gap or are partially fouled.
2. Spark plug cables in bad condition and leaking.
3. Battery nearly discharged.
4. Loose wire or cable connection at one of the battery terminals or at coil.
5. Engine oil too heavy (cold weather).

6. Fuel tank vent plugged or fuel line closed off, restricting fuel flow.
7. Water or dirt in fuel system or filter.
8. Fuel pump inoperative.

### **Starts But Runs Irregularly or Misses**

1. Spark plugs in bad condition or partially fouled.
2. Spark plug cables in bad condition and leaking.
3. Spark plug gap too close or too wide.
4. Battery nearly discharged.
5. Damaged wire or loose connection at battery terminals or coils.
6. Intermittent short circuit due to damaged wire insulation.
7. Water or dirt in fuel system or filter.
8. Fuel vent system plugged. See dealer.
9. One or more injectors fouled.

### **A Spark Plug Fouls Repeatedly**

1. Fuel mixture too rich.
2. Incorrect spark plug for service

### **Pre-ignition or Detonation (Knocks or Pings)**

1. Incorrect fuel.
2. Incorrect spark plug for service

### **Overheats**

1. Low coolant level.
2. Insufficient oil supply or oil not circulating.
3. Heavy carbon deposit from lugging engine. See dealer.
4. Insufficient air flow through radiator during extended periods of idling.

### **Excessive Vibration**

1. Rear fork pivot shaft loose. See dealer.
2. Drive belt badly worn.
3. Damaged frame. See dealer.
4. Wheels and/or tires damaged. See dealer.
5. Vehicle not properly aligned. See dealer.

### **Engine Oil Not Circulating (Oil Pressure Indicator Lit)**

1. Insufficient or diluted oil supply.

2. Grounded oil signal switch wire or faulty signal switch. See dealer.
3. Oil pump problem. See dealer.

## **TRANSMISSION**

### **Transmission Shifts Hard**

1. Clutch controls or clutch cable improperly adjusted. See dealer.
2. Bent shifter rod. See dealer.

### **Transmission Jumps Out of Gear**

1. Worn shifter dogs in transmission. See dealer.

### **Clutch Slips**

1. Clutch controls or clutch cable improperly adjusted. See dealer.
2. Worn friction discs. See dealer.
3. Insufficient clutch spring tension. See dealer.

### **Clutch Drags or Does Not Release**

1. Clutch controls or clutch cable improperly adjusted. See dealer.
2. Clutch discs warped. See dealer.

## **Clutch Chatters**

1. Friction discs or steel discs worn or warped. See dealer.

## **COOLING SYSTEM**

### **Overheats**

1. Low coolant level or improper coolant.
2. Cooling fans not operating.
3. Air flow through the radiator is obstructed.
4. Blocked coolant passages.
5. Temperature gauge malfunction.
6. Radiator cap problem.
7. Thermostat malfunction.

## **ELECTRICAL SYSTEM**

### **Alternator Does Not Charge**

1. Regulator not grounded. See dealer.
2. Engine ground wire loose or damaged. See dealer.
3. Loose or damaged wires in charging circuit. See dealer.

### **Alternator Charge Rate is Below Normal**

1. Weak battery.

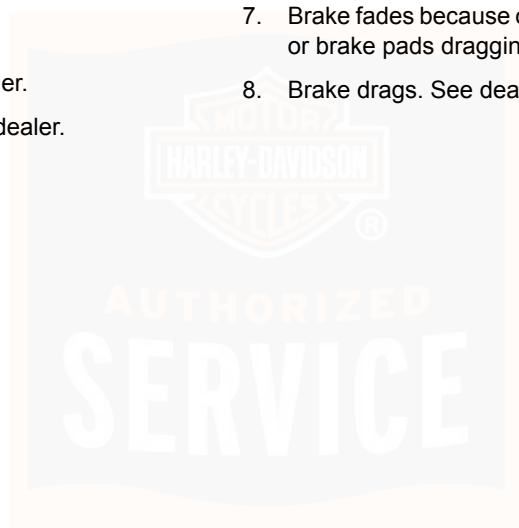
2. Excessive use of add-on accessories.
3. Loose or corroded connections.
4. Extensive periods of idling or low speed riding.

## **BRAKES**

### **Brakes Do Not Hold Normally**

1. Master cylinder low on fluid. See dealer.
2. Brake line contains air bubbles. See dealer.

3. Master or wheel cylinder piston worn. See dealer.
4. Brake pads contaminated with grease or oil. See dealer.
5. Brake pads badly worn. See dealer.
6. Brake disc badly worn or warped. See dealer.
7. Brake fades because of heat build up. Excessive braking or brake pads dragging. See dealer.
8. Brake drags. See dealer.



## MAINTENANCE RESPONSIBILITIES

This owner's manual contains your owner's maintenance record.

It is your responsibility as the owner to follow the maintenance schedule at the mileage intervals as specified in the owner's manual.

1. Make an appointment with a Harley-Davidson dealer for inspection and service prior to the first 1,000 mi (1,600 km), and as soon as possible after any issue arises.
2. Bring this owner's manual with you when you visit your authorized Harley-Davidson dealer to have your motorcycle inspected and serviced.
3. Have the dealer technician sign the maintenance record in the owner's manual at the proper mileage interval. These records should be retained by the owner as proof of proper maintenance.
4. Keep receipts covering any parts, service or maintenance performed.

These records should be transferred to each subsequent owner.

While you may elect to use non genuine Harley-Davidson parts for maintenance and/or repair services, Harley-Davidson is not obligated to pay for repairs of the non genuine

Harley-Davidson parts or for repairs of any damage resulting from the use of non genuine parts.

### NOTICE

**It is possible to overload the vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. (00211d)**

## FINDING AN AUTHORIZED DEALER

You may obtain the name and location of your nearest U.S. authorized Harley-Davidson dealer by calling 1-800-258-2464 (U.S. only). To find dealers worldwide, refer to [www.harley-davidson.com](http://www.harley-davidson.com). The fact that an authorized Harley-Davidson dealership performs warranty repairs does not create an agency relationship between Harley-Davidson and the authorized dealership.

## REPORTING SAFETY DEFECTS IN THE UNITED STATES

Safety defects must be reported to the National Highway Traffic Safety Administration (NHTSA) and Harley-Davidson.

## NHTSA Statement

If you believe that your motorcycle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Harley-Davidson.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of motorcycles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your authorized Harley-Davidson dealer, or Harley-Davidson.

You can contact NHTSA through the following means. Additional information about motor vehicle safety is available through the website.

**Telephone:** Vehicle Safety Hotline (toll-free) at 1-888-327-4236 (TTY: 1-800-424-9153).

**Website:** [www.safercar.gov](http://www.safercar.gov)

**Address:** Administrator, NHTSA, 400 Seventh Street SW, Washington, DC 20590

## REPORTING SAFETY CONCERNS IN CANADA

Safety concerns may be reported to the Canadian Department of Transportation and Harley-Davidson.

You can contact the Canadian Department of Transportation through the following means.

### Mailing Address:

Transport Canada - ASFAD

330 Sparks Street

Ottawa, ON

K1A 0N5

**Telephone:** 819-994-3328 (Gatineau-Ottawa area or internationally)

**Toll free:** 1-800-333-0510 (in Canada)

### Online:

<http://www.tc.gc.ca/recalls>

## REQUIRED DOCUMENTATION FOR IMPORTED MOTORCYCLES

If a Harley-Davidson motorcycle is imported into the United States, additional documentation is required for that

motorcycle to be eligible for the United States Harley-Davidson Motorcycle Limited Warranty. Refer to [www.harley-davidson.com](http://www.harley-davidson.com).

## OWNER CONTACT INFORMATION

If you move from your present address, sell your motorcycle, or purchase a pre-owned Harley-Davidson motorcycle, see an authorized Harley-Davidson dealer to update your owner contact information.

This will provide Harley-Davidson with an accurate registration (as required by law in some countries), and will allow Harley-Davidson to notify you in the event of a recall or product program.

The rights and benefits conferred upon you and the obligations of Harley-Davidson as set forth herein are separate and distinct from any rights and duties set forth in any service contract you may have purchased from a dealership and/or third-party insurance company. Harley-Davidson does not authorize any entity to expand Harley-Davidson's warranty obligations in connection with your motorcycle or this limited warranty.

When updating your contact information, your authorized Harley-Davidson dealer will need your Vehicle Identification Number (VIN), odometer mileage, and date of vehicle transfer (if applicable).

## QUESTIONS AND CONCERNS

If you have questions or concerns regarding the performance of your motorcycle or the application of the limited warranty described here, or are not satisfied with the service you are receiving from an authorized Harley-Davidson dealership, do the following:

1. Contact the selling and/or servicing dealership and speak to the sales and/or service manager.
2. If your concern cannot be addressed to your satisfaction by the dealership, contact the Harley-Davidson Customer Support Center by mailing your concern to the following address or calling the phone number below.

In the U.S., state warranty laws, often referred to as lemon laws, may provide you with certain rights not mentioned here. To the extent allowed by your state, Harley-Davidson requests that you first send written notification of any defect or warranty non-conformity that you have experienced with your motorcycle to Harley-Davidson. Harley-Davidson appreciates the opportunity to investigate your concerns and restore your satisfaction in your motorcycle by making the necessary repairs consistent with the terms of Harley-Davidson's limited warranty. Harley-Davidson requests that you send any complaints or questions to the Harley-Davidson Customer Support Center.

- Harley-Davidson Motor Company Inc. Attention: Harley-Davidson Customer Support Center P.O. Box 653 Milwaukee, Wisconsin 53201 1-800-258-2464 (U.S. only) 1-414-343-4056

Harley Davidson's limited warranty does not mean that each Harley-Davidson motorcycle is free from defects. Defects may be unintentionally introduced into motorcycles during the design and manufacturing processes and such defects could result in the need for repairs. For this reason, Harley-Davidson provides the Limited Warranty in order to remedy any such defects that result in a component malfunction or failure during the warranty period. The remedy under this written warranty, and any implied warranty, is limited to repair, replacement, or adjustment of the defective part. THIS EXCLUSIVE REMEDY SHALL NOT BE DEEMED TO HAVE FAILED ITS ESSENTIAL PURPOSE SO LONG AS HARLEY-DAVIDSON,

THROUGH ITS AUTHORIZED DEALERS, IS WILLING AND ABLE TO REPAIR, REPLACE OR ADJUST DEFECTIVE PARTS IN THE PRESCRIBED MANNER. HARLEY-DAVIDSON'S LIABILITY, IF ANY, SHALL IN NO EVENT EXCEED THE COST OF CORRECTING ANY DEFECT AS HEREIN PROVIDED AND UPON EXPIRATION OF THIS WARRANTY, ANY SUCH LIABILITY SHALL TERMINATE.

The rights and benefits conferred upon you and the obligations of Harley-Davidson as set forth in the Limited Warranty are separate and distinct from any rights and duties set forth in any service contract you may have purchased from a dealership and/or third-party insurance company. Harley-Davidson does not authorize any entity to expand Harley-Davidson's warranty obligations in connection with your motorcycle or this limited warranty.

SERVICE



# 2024 HARLEY-DAVIDSON LIMITED MOTORCYCLE WARRANTY

## 24 Months/Unlimited Miles

Harley-Davidson Motor Company Inc. warrants for any new 2024 Harley-Davidson<sup>®</sup> motorcycle that an authorized Harley-Davidson dealer will repair or replace without charge any parts found under normal use to be defective in factory materials or workmanship. Such repair or replacement of defective parts will be Harley-Davidson's sole obligation and your sole and exclusive remedy under this limited warranty. This limited warranty applies only for the duration identified below.

No person, including Harley-Davidson dealers, may modify, extend, or waive any part of this warranty. As a condition of this warranty, you are responsible for properly using, maintaining, and caring for your motorcycle as outlined in your Owner's Manual. Harley-Davidson recommends that you maintain copies of all maintenance records and receipts.

Except as described in the following paragraphs, taking your motorcycle to be serviced by a repair shop that is not an authorized Harley-Davidson dealer will not void this warranty, and using non-genuine Harley-Davidson parts alone will not void this warranty.

Harley-Davidson may, however, exclude warranty coverage for defects or damage caused by unauthorized (a) parts, (b)

service, or (c) use of the vehicle, including defects or damage caused by use of non-Genuine Harley-Davidson parts or use of the vehicle for racing or competition, and denial of coverage may be based on installation of parts designed for unauthorized uses of the vehicle, such as a trailer hitch.

Additionally, Harley-Davidson shall exclude warranty coverage and deny all warranty claims for functional defects of powertrain components for any Harley-Davidson motorcycle registered in the United States if the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency, or if Harley-Davidson or any authorized Harley-Davidson dealer has any information to show that the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency.

## Disclaimers & Limitations

THERE IS NO OTHER EXPRESS WARRANTY ON THE MOTORCYCLE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY, OR TO THE DURATION SET FORTH IN YOUR STATE'S WARRANTY STATUTES, WHICHEVER IS SHORTER. ANY IMPLIED WARRANTY IS

NOT TRANSFERRED TO SUBSEQUENT PURCHASERS/BUYERS OF THE MOTORCYCLE.

THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE DOES NOT APPLY IF YOUR MOTORCYCLE IS USED FOR RACING, EVEN IF THE MOTORCYCLE IS EQUIPPED FOR RACING.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Harley-Davidson and your dealer are not responsible for any time or income that you lose, any inconvenience, the loss of your transportation or use of your motorcycle, the cost of a rental motorcycle, fuel, travel, meals, or lodging, or for any other incidental or consequential damages you may have.

Punitive, exemplary, or multiple damages may not be recovered unless applicable law prohibits their disclaimer. You may not bring any warranty-related claim as a class representative, a private attorney general, a member of a class of claimants or in any other representative capacity. Harley-Davidson shall not be liable for any damages caused

by delay in delivery or furnishing of any products and/or services.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

## Warranty Duration

1. The duration of this limited warranty is 24-months, starting from the earlier of:
  - a. The date of initial retail purchase and delivery of the motorcycle from an authorized Harley-Davidson dealer, or:
  - b. Two (2) years after the model year launch of the vehicle in question.
    - **Example:** An unsold 2022 vehicle warranty will start when the 2024 models start to ship.

Your authorized Harley-Davidson dealer will submit an electronic Sales and Warranty Registration form to initiate your limited warranty.

2. Any unexpired portion of this limited warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the limited warranty period.

## Owner's Obligations

To obtain warranty service, return your motorcycle at your expense within the limited warranty period to an authorized Harley-Davidson dealer. The authorized Harley-Davidson dealer should be able to provide warranty service during normal business hours, depending upon the workload of the authorized dealer's service department and the availability of necessary parts.

## Exclusions

**For On-Road Motorcycles, this Limited warranty will not cover claims arising from the following:**

1. Failure to operate or maintain your motorcycle as specified in the owner's manual, including the Maintenance Responsibilities, Service Intervals & Records, and Maintenance & Lubrication sections.
2. Abuse, neglect, misuse, improper storage, use "off the highway," or used for racing or competition of any kind.
3. Motorcycles which are not manufactured to comply with the laws of the market in which they are registered.

4. Defects or damage caused by installation of off-road parts or competition parts installed to enhance performance, or making other unapproved modifications, including but not limited to a trailer hitch. This includes the use of genuine Harley-Davidson parts in unapproved applications.
5. An act of God, war, riot, insurrection, nuclear contamination, natural disasters, including, but not limited to, lightning, forest fires, dust storms, hail storms, ice storms, earthquakes, or floods, or other circumstances out of Harley-Davidson's control.
6. A motorcycle which has been in an accident or collision, dropped or struck.
7. A Motorcycle that experiences (A) radio / TFT display syncing issues, (B) improper functioning radio / TFT display, (C) damage to the radio / TFT display caused by: including but not limited to, phone or other media storage device (MP3, jump drive, or etc.) software, abnormal use, unauthorized modification, computer viruses, or installation of unauthorized software, peripherals and attachments (accessories, GPS/Satellite units).
  - a. Replacement parts under this warranty may include a refurbished radio.

## On-Road/Off-Road Vehicles

Harley-Davidson's Pan America was designed for on-road and moderate off-road use. This entails use on paved and gravel roads and groomed trails, but does not include competition courses, rally routes or similar uses.

**For On-Road/Off-Road Motorcycles, this limited warranty will not cover claims arising from the following:**

1. Failure to operate or maintain your motorcycle as specified in the Owner's Manual, including the Maintenance Responsibilities, Service Intervals & Records, and Maintenance & Lubrication sections.
2. Abuse, neglect, misuse, improper storage, or use for racing or competition of any kind.
3. Motorcycles not equipped to comply with the laws of the market in which they are registered.
4. Defects or damage caused by installation of off-road or competition parts installed to enhance performance, or making other unapproved modifications, including but not limited to a trailer hitch. This includes the use of genuine Harley-Davidson parts in unapproved applications.
5. An act of God, war, riot, insurrection, nuclear contamination, natural disasters, including, but not limited to, lightning, forest fires, dust storms, hail storms, ice storms, earthquakes, or floods, or other circumstances out of Harley-Davidson's control.

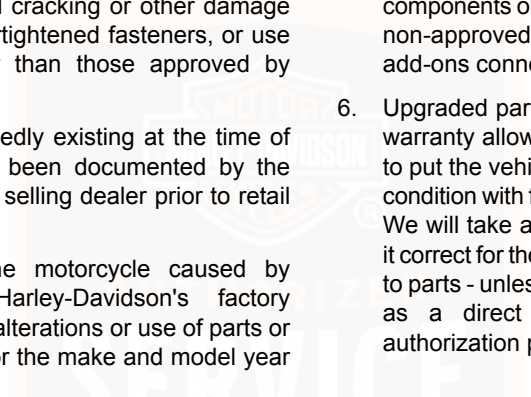
### 200 Limited Motorcycle Warranty

6. A motorcycle which has been in an accident, collision, dropped or struck.
7. A Motorcycle that experiences (A) radio / TFT display syncing issues, (B) improper functioning radio / TFT display, (C) damage to the radio / TFT display caused by: including but not limited to, phone or other media storage device (MP3, jump drive, or etc.) software, abnormal use, unauthorized modification, computer viruses, or installation of unauthorized software, peripherals and attachments (accessories, GPS/Satellite units).
  - a. Replacement parts under this warranty may include a refurbished radio.

## Other Limitations

This limited warranty does not cover:

1. Parts and labor for normal maintenance as recommended in the owner's manual, or the replacement of parts due to normal wear and tear including, but not limited to, the following: light bulbs, tires, lubrication, oil and filter change, fuel system cleaning, battery maintenance, engine tune-up, spark plugs, brake pads, brake discs, clutches and components, chain/belt adjustment, and chain/belt replacement.

- 
2. Cosmetic damage that arises as a result of owner misuse or abuse, lack of proper maintenance as described in the Owner's Manual, or environmental conditions (except concerns that result from defects in factory materials or workmanship, which are covered by this limited warranty for the duration of the limited warranty period), including but not limited to windshield cracking or other damage caused by road debris, overtightened fasteners, or use of cleaning products other than those approved by Harley-Davidson.
  3. Any cosmetic damage allegedly existing at the time of retail delivery that has not been documented by the authorized Harley-Davidson selling dealer prior to retail delivery.
  4. Defects or damage to the motorcycle caused by alterations outside of Harley-Davidson's factory specifications or caused by alterations or use of parts or accessories not approved for the make and model year of your motorcycle.
  5. Damage caused by installation or use of non-genuine Harley-Davidson parts, or unapproved genuine Harley-Davidson parts, even those installed by an authorized Harley-Davidson dealership, that cause a genuine Harley-Davidson part to fail. Examples include, but are not limited to performance-enhancing powertrain components or software, exhaust systems, trailer hitches, non-approved tires, lowering kits, handlebars, and add-ons connected to the factory electrical system.
  6. Upgraded parts as a warranty replacement. The limited warranty allows for repair or replacement of failed parts to put the vehicle, component, or part back to its original condition with factory supplied materials and as delivered. We will take all steps to repair/replace the part to make it correct for the customer. This does not include upgrades to parts - unless no other suitable component is available as a direct replacement. This would require an authorization prior to repair.

7. **United States customers:** Functional defects of powertrain components for any Harley-Davidson motorcycle registered in the United States if the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency, or if Harley-Davidson or any authorized Harley-Davidson dealer has any information to show that the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency.
2. This limited warranty is a contract between you and Harley-Davidson. It is separate and apart from any warranty, service plan, or service contract you may receive or purchase from an authorized Harley-Davidson dealer. An authorized Harley-Davidson dealer is not authorized to alter, modify, expand, or in any way change the terms and conditions of this limited warranty.
3. Any warranty work or parts replacement authorized by Harley-Davidson will not preclude Harley-Davidson from later relying on any exclusion where applicable.

### **Important: Read Carefully**

1. Authorized Harley-Davidson dealers are independently owned and operated and may sell non-Harley-Davidson products. Because of this, HARLEY-DAVIDSON IS NOT RESPONSIBLE FOR THE SAFETY, QUALITY, OR SUITABILITY OF ANY NON-HARLEY-DAVIDSON PART, ACCESSORY OR DESIGN MODIFICATION INCLUDING, BUT NOT LIMITED TO, LABOR WHICH MAY BE SOLD AND/OR INSTALLED BY AUTHORIZED HARLEY-DAVIDSON DEALERS.

4. Harley-Davidson and its authorized dealers reserve the right to modify or service motorcycles designed and manufactured by Harley-Davidson at any time without incurring any additional obligation to make the same alteration or change to a motorcycle previously built and sold. Harley-Davidson reserves the right to provide post-warranty repairs, conduct repair campaigns, offer good-will or customer satisfaction repairs or extend the warranty coverage for certain motorcycles at its sole discretion. Said repairs or extensions of warranty coverage in no way obligates Harley-Davidson to provide similar accommodations to other owners of similar motorcycles. Sometimes Harley-Davidson may offer a special adjustment program to pay all or part of the cost of certain repairs beyond the terms of your limited warranty. Check with your authorized Harley-Davidson dealer to learn whether such programs are available to you. Your state may prohibit these types of offers, in which case, they may not be available to you.
5. The fact that a part is labeled or branded Harley-Davidson does not necessarily make it appropriate or warranted for the make and model of your motorcycle. The use of parts not designed and tested for your motorcycle may have negative consequences on the performance of your motorcycle and may cause damage or defects not covered by this limited warranty.
6. It is possible to overload your vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system.

## **Environmental Factors**

1. Warranty will cover rust/corrosion and/or pitting on one component, one time only, under appropriate conditions. If a vehicle is exhibiting any of these conditions on more than one component, warranty coverage will be denied.
2. Warranty will cover rust/corrosion and/or pitting on multiple components only if they are the same component (i.e. both mirrors, both rider footboards, etc.)
3. Warranty will not cover rust/corrosion and/or pitting on wheels at any time unless the condition had been properly documented in the DPQA. For warrantable conditions see Cosmetic Quality Guide.
4. Warranty will not cover rust/corrosion and/or pitting as a result of damage from road debris, hazards, neglect, chemical exposure or abuse/misuse of the motorcycle.
5. Warranty will not cover rust/corrosion inside fuel tanks.
6. Warranty will not cover rust/corrosion and/or pitting or part wear that results from off-road use.

The owner is responsible for protecting the motorcycle from any cosmetic damage resulting from use and/or from exposure to the elements.

## **USA Owners 49 State Limited Emissions Warranty**

The following limited warranty applies to the emission control system, is in addition to the MOTORCYCLE LIMITED WARRANTY and NOISE CONTROL SYSTEM LIMITED WARRANTY, and applies only to Harley-Davidson motorcycles certified for sale, registered, and normally operated in the U.S. For California models, refer to the CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT for additional warranty provisions.

Harley-Davidson Motor Company warrants to the first owner and each subsequent owner that this vehicle is designed, built, and equipped so as to conform at the time of sale with applicable regulations under section 7521 of Title 42 of the United States Code, and that it is free from defects in materials and workmanship which would cause this motorcycle to fail to conform with applicable emissions regulations for five (5) years from the initial retail purchase and delivery from an authorized Harley-Davidson dealer (or five (5) years from the date the motorcycle is first placed in service, if it is first placed in service as a ""demonstrator"" or ""company"" motorcycle prior to delivery), or 18641 mi (30,000 km), whichever occurs first. Any unexpired portion of this limited warranty will be

transferred to subsequent owners, upon the resale of the motorcycle during the warranty period.

Harley-Davidson Motor Company Inc. warrants for any new 2024 Harley-Davidson emission control system that an authorized Harley-Davidson dealer will repair or replace without charge any parts found under normal use to be defective in factory materials or workmanship. Such repair or replacement of defective parts will be Harley-Davidson's sole obligation and your sole and exclusive remedy under this limited warranty. This limited warranty applies only for the duration identified below.

To obtain warranty service, return your motorcycle at your expense within the limited warranty period to an authorized Harley-Davidson dealer. The authorized Harley-Davidson dealer should be able to provide warranty service during normal business hours, depending upon the workload of the authorized dealer's service department and the availability of necessary parts.

For further information, you can contact Harley-Davidson Motor Company Inc. in the following ways

- By mail to: Attention: Harley-Davidson Customer Support Center P.O. Box 653 Milwaukee, Wisconsin 53201
- Phone: 1-800-258-2464 (U.S. only) 1-414-343-4056

THERE IS NO OTHER EXPRESS WARRANTY ON THE MOTORCYCLE. ANY IMPLIED WARRANTY OF

### **204 Limited Motorcycle Warranty**



MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

The limited warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, on the date it is first placed in service.

Except as described in the following paragraphs, taking your motorcycle to be serviced by a repair shop that is not an authorized Harley-Davidson dealer will not void this emissions control system limited warranty, and using non-genuine Harley-Davidson parts alone will not void this warranty.

Harley-Davidson may, however, exclude warranty coverage for defects or damage caused by unauthorized (a) parts, (b) service, or (c) use of the vehicle, including defects or damage caused by use of non-Genuine Harley-Davidson parts or use of the vehicle for racing or competition, and denial of coverage may be based on installation of parts designed for unauthorized uses of the vehicle, such as a trailer hitch.

Additionally, Harley-Davidson shall exclude warranty coverage and deny all warranty claims for functional defects of powertrain components for any Harley-Davidson motorcycle

registered in the United States if the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency, or if Harley-Davidson or any authorized Harley-Davidson dealer has any information to show that the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency.

#### **THE FOLLOWING ITEMS ARE NOT COVERED BY THE EMISSION CONTROL SYSTEM LIMITED WARRANTY**

1. Failures which arise as a result of misuse, tampering, alterations, accident, acts of nature, or improper or inadequate maintenance as specified in the Owner's Manual.
2. Required maintenance services (as specified in the Owner's Manual) and the replacement of parts (such as spark plugs, fuel, and oil filters, etc.) used in required maintenance.
3. Any motorcycle on which the odometer mileage has been changed so that the mileage cannot be determined.

4. TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, TOWING OF THE VEHICLE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

### **Items Covered by this Emission Warranty**

The emission control system warranty may cover the following parts if the defect is deemed to be emissions-related:

- Air cleaner assembly, including air filter
- Camshaft
- Cam Phaser(s)
- Carbon canister
- Catalytic converter
- Crankcase breather
- Crank position sensor
- Engine Control Module
- Engine coolant temperature sensor

- Engine temperature sensor
- Fuel injectors
- Fuel pump module
- Ignition coil
- Ignition wires (Spark plug cables)
- Induction module or throttle body
- Intake air temperature sensor
- MAP sensor/TMAP sensor
- Muffler
- Purge Control Valve
- Oxygen sensors
- Spark plug
- Throttle position sensor

### **Fuel Tank** (non-cosmetic failures only)

- Leaks
- Vapor valve
- Fuel cap

If used on the above: hoses, clamps, fittings, tubing, sealing gaskets and mounting hardware.

Detailed instructions for proper maintenance and use of this motorcycle, including the time and/or mileage intervals at which such maintenance is to be performed, may be found in this Owner's Manual under Owner Manual > Service Intervals and Records (Page 217).

### **Other Rights**

This limited warranty gives you specific legal rights, and you may have other rights which vary from state to state.

### **Recommendations for Required Maintenance**

It is recommended that any emission system maintenance be performed by an authorized Harley-Davidson dealer using genuine Harley-Davidson replacement parts. However, the maintenance, replacement or repair of the emissions control system may be performed by any other qualified service outlet or individual. Non-genuine Harley-Davidson parts may be used, but such parts should be checked to make sure they are certified to comply with U.S. Environmental Protection Agency Standards.

### **California and Select International Markets Evaporative Emission Controls**

All new Harley-Davidson motorcycles sold in the State of California and select international markets have an evaporative emission control system. This system is designed

to meet CARB and local regulations in effect at the time of manufacture.

The system requires a small amount of maintenance. Periodically inspect system to verify that hoses are properly routed, not kinked or blocked and that all fittings are secure. Periodically check mounting hardware for tightness.

### **California Emissions Control Warranty Statement**

#### **Your Warranty Rights and Obligations**

The California Air Resources Board and Harley-Davidson Motor Company are pleased to explain the emission control system warranty on your new motorcycle. In California, new motor vehicles must be designed, built, and equipped to meet the State's stringent anti-smog standards. Harley-Davidson Motor Company warrants the emission control system on your motorcycle for the periods of time listed below, provided there has been no abuse, neglect, or improper maintenance of your motorcycle.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, catalytic converter, and engine computer. Also included may be hoses, belts, connectors, and other emission-related assemblies.

Where a warrantable condition exists, within the warranty period noted below, Harley-Davidson will repair your motorcycle at no cost to you including diagnosis, parts, and labor.

## **Manufacturer's Warranty Coverage**

For a period of use of five years or 18641 mi (30,000 km), whichever first occurs, beginning on the date the motorcycle is delivered to the ultimate purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, the date it is first placed in service.

In accordance with Title 13 CCR 2036 (b), Harley-Davidson shall warrant to the ultimate purchaser and each subsequent purchaser during the remainder of the original warranty period that the vehicle or engine is: (1) Designed, built, and equipped so as to conform, at the time of sale, with all applicable regulations adopted by the Air Resources Board pursuant to its authority in chapters 1 and 2, part 5, division 26 of the Health and Safety Code; and (2) Free from defects in materials and workmanship which cause the failure of a warranted part to be identical in all material respects to that part as described in Harley-Davidson's application for certification.

In accordance with Title 13 CCR 2036 (d)(10), any add-on or modified part exempted by the Air Resources Board from the prohibitions of Vehicle Code section 27156 may be used on a vehicle or engine. Such use, in and of itself, shall not be grounds for disallowing a warranty claim made in accordance

with this article. Harley-Davidson shall not be liable under this article to warrant failures of warranted parts caused by the use of an add-on or modified part.

In accordance with Title 13 CCR 2036 (j)(3), except as provided in Title 13 CCR 2036 (j)(1), any adjustment of a component which as a factory installed, and properly operating, adjustment limiting device (such as an idle limiter cap) is eligible for warranty coverage under subsection Title 13 CCR 2036 (d)(10) or Title 13 CCR 2036 (j)(3).

If any emission-related part on your motorcycle is defective, the part will be repaired or replaced by Harley-Davidson Motor Company. This is your emission control system DEFECTS WARRANTY.

## **Owner's Warranty Responsibilities**

As the motorcycle owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. Harley-Davidson recommends that you retain all receipts covering maintenance on your motorcycle, but Harley-Davidson cannot deny emissions warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance, unless the condition is caused by your lack of maintenance or improper maintenance.

You are responsible for presenting your motorcycle to an authorized Harley-Davidson dealer as soon as a problem

exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As the motorcycle owner, you should also be aware that Harley-Davidson may deny you warranty coverage if your motorcycle or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact;

- Harley-Davidson Customer Service Department at 1-800-258-2464 (U.S. only) or 1-414-343-4056, or
- California Air Resources Board at 4001 Iowa Ave., Riverside, California 92507

## Additional Warranty Terms

The emission control system of each new Harley-Davidson motorcycle was designed, built, and tested using only Genuine Harley-Davidson parts and with these parts the motorcycle is certified as being in conformity with California emission control regulations.

We recommend that you take your motorcycle to an authorized Harley-Davidson dealer for repairs under this limited warranty.

The dealer has factory-trained mechanics and genuine Harley-Davidson parts that are compliant with California emission control regulations. However, in the case of an

"emergency" (as defined below), you may have repairs performed at any available service establishment or by the owner, using any replacement part. An authorized Harley-Davidson dealer not being reasonably available, or a part not being available within a reasonable time period (not to exceed 30 days from the time the motorcycle is initially presented to a Harley-Davidson dealer for repair) constitutes an "emergency." Harley-Davidson will reimburse the owner for such repairs, including diagnosis, only if it is established that the repairs are covered under this emission warranty. Harley-Davidson's parts reimbursement, however, will not exceed our suggested retail price for all warranted parts replaced and our labor reimbursement will be limited to our recommended time allowances for emission system repairs at the geographically appropriate hourly labor rate.

To obtain reimbursement from Harley-Davidson for such emergency repairs, you must keep all failed parts and original receipts, so you can present them to an authorized Harley-Davidson dealer for inspection. Harley-Davidson recommends that you bring your motorcycle to an authorized dealer for inspection to ensure that the emergency repairs were done properly.

**Remember:** Use of non-Harley-Davidson replacement parts may impair the effectiveness of the emission control system or otherwise damage your motorcycle. The use of non-Harley-Davidson replacement parts does not invalidate the existing warranty, if any, on other Harley-Davidson

components unless the non-Harley-Davidson parts cause damage to warranted parts or result in the creation of an emissions non-compliant motorcycle. However, HARLEY-DAVIDSON ASSUMES NO LIABILITY UNDER THIS WARRANTY WITH RESPECT TO ANY PARTS WHICH ARE NOT GENUINE HARLEY-DAVIDSON PARTS, unless Harley-Davidson parts cause damage to non-genuine Harley-Davidson parts.

### **What Is Covered by this Emission Warranty**

The emission control system warranty covers the following "warranted parts" only:

- Air cleaner assembly, including air filter
- Camshaft
- Cam Phaser(s)
- Carbon canister
- Catalytic converter
- Crankcase breather
- Crank position sensor
- Engine Control Module
- Engine coolant temperature sensor
- Engine temperature sensor

- Fuel injectors
- Fuel pump module
- Ignition coil
- Ignition wires (Spark plug cables)
- Induction module or throttle body
- Intake air temperature sensor
- MAP sensor/TMAP sensor
- Muffler
- Purge Control Valve
- Oxygen sensors
- Spark plug
- Throttle position sensor

#### **Fuel Tank (non-cosmetic failures only)**

- Leaks
- Vapor Valve
- Fuel cap

If used on the above: hoses, clamps, fittings, tubing, sealing gaskets and mounting hardware.

## What Is Not Covered by this Emission Warranty

The emission control system warranty does not cover:

1. Malfunctions in any "warranted parts" caused by any of the following: abuse, misuse, unapproved modification or alteration, tampering, disconnection, or improper or inadequate maintenance. The warranty also does not cover replacement of listed parts in the event that the vehicle has been rendered emissions non-compliant in the state of California through actions noted above.
2. Damage resulting from accident, acts of nature or other events beyond the control of Harley-Davidson.
3. The repair or replacement of "warranted parts" which are scheduled for replacement prior to 18641 mi (30,000 km), once these parts have been replaced at the first replacement interval as part of required maintenance services.
4. Repairs and services performed by anyone other than an authorized Harley-Davidson Dealer (except in case of emergency as defined above).
5. Loss of time, inconvenience, loss of use of the motorcycle, towing of the vehicle, or commercial loss and/or consequential damages, except as otherwise required under Title 13 CCR 2036(d)(7).

6. Repairs on any motorcycle of which odometer mileage has been changed so that mileage cannot be readily determined.

TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, TOWING OF THE VEHICLE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

In accordance with Title 13 CCR 2036 (d)(7), Harley-Davidson shall be liable for damages to other vehicle components proximately caused by a failure under warranty of any warranted part.

Submit a warranty claim for repairs on vehicles within the 24-month factory limited warranty and mileage is less than 18641 mi (30,000 km) using an MC claim type. If the vehicle is outside 24-month factory limited warranty but within the 5-year, 18641 mi (30,000 km) emissions control system limited warranty, submit the claim on an EMS claim type.

## EPA Regulations

**Tampering with noise control / exhaust emissions control system prohibited:**

Federal law prohibits the following acts or the causing thereof:  
(1) the removal or rendering inoperative by any person other

than for the purposes of maintenance, repair, or replacement of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the following:

1. Replacing the muffler(s) and/or the entire exhaust system with parts not certified to be noise legal for street use.
2. Removing or modifying the muffler internal baffles in any way.
3. Replacing the air intake/cleaner assembly with one not certified to be noise legal for street use.
4. Modifying the air intake/cleaner assembly in such a way as to make the vehicle no longer noise legal for street use.

## Noise Control System Limited Warranty

The following limited warranty applies to the noise control system, is in addition to the MOTORCYCLE LIMITED WARRANTY and EMISSION CONTROL SYSTEM LIMITED WARRANTY, and applies only to Harley-Davidson motorcycles sold in the U.S.

Harley-Davidson warrants to the first owner and each subsequent owner that this motorcycle is designed and built so as to conform at the time of sale with applicable regulations of the U.S. Environmental Protection Agency (as tested following F-76 Drive-By test procedure) and that it is free from defects in factory materials and workmanship which can cause this motorcycle not to meet U.S. Environmental Protection Agency Standards within one (1) year from initial retail purchase and delivery from an authorized Harley-Davidson dealer or one (1) year from the [second] anniversary of the last day of the model year of the motorcycle, or 3,730 mi (6,000 km) whichever occurs first. Any unexpired portion of this limited warranty will be transferred to subsequent owners, upon the resale of the motorcycle during the limited warranty period. If the motorcycle was used as a demonstrator or company motorcycle, then the limited warranty period may have started and/or expired prior to the initial retail sale. See an authorized Harley-Davidson dealer for details.

Harley-Davidson Motor Company Inc. warrants for any new 2024 Harley-Davidson noise control system that an authorized Harley-Davidson dealer will repair or replace without charge any parts found under normal use to be defective in factory materials or workmanship. Such repair or replacement of defective parts will be Harley-Davidson's sole obligation and your sole and exclusive remedy under this limited warranty. This limited warranty applies only for the duration identified below.

## 212 Limited Motorcycle Warranty



To obtain warranty service, return your motorcycle at your expense within the limited warranty period to an authorized Harley-Davidson dealer. The authorized Harley-Davidson dealer should be able to provide warranty service during normal business hours, depending upon the workload of the authorized dealer's service department and the availability of necessary parts. For further information, you can contact Harley-Davidson Motor Company Inc. in the following ways

- By mail to: Attention: Harley-Davidson Customer Support Center P.O. Box 653 Milwaukee, Wisconsin 53201
- Phone: 1-800-258-2464 (U.S. only) 1-414-343-4056

Except as described in the following paragraphs, taking your motorcycle to be serviced by a repair shop that is not an authorized Harley-Davidson dealer will not void this emissions control system limited warranty, and using non-genuine Harley-Davidson parts alone will not void this warranty.

Harley-Davidson may, however, exclude warranty coverage for defects or damage caused by unauthorized (a) parts, (b) service, or (c) use of the vehicle, including defects or damage caused by use of non-Genuine Harley-Davidson parts or use of the vehicle for racing or competition, and denial of coverage may be based on installation of parts designed for unauthorized uses of the vehicle, such as a trailer hitch.

Additionally, Harley-Davidson shall exclude warranty coverage and deny all warranty claims for functional defects of

powertrain components for any Harley-Davidson motorcycle registered in the United States if the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency, or if Harley-Davidson or any authorized Harley-Davidson dealer has any information to show that the vehicle was tuned using a tuning product not covered by a California Air and Resources Board Executive Order or that was otherwise approved by the Environmental Protection Agency.

This limited warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, on the date it is first placed in service.

This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

THERE IS NO OTHER EXPRESS WARRANTY ON THE MOTORCYCLE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY, OR TO THE DURATION SET FORTH IN YOUR STATE'S WARRANTY STATUTES, WHICHEVER IS SHORTER. ANY IMPLIED WARRANTY IS NOT TRANSFERRED TO SUBSEQUENT PURCHASERS/BUYERS OF THE MOTORCYCLE. THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR

PURPOSE DOES NOT APPLY IF YOUR MOTORCYCLE IS USED FOR RACING, EVEN IF THE MOTORCYCLE IS EQUIPPED FOR RACING. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

The following items are not covered by the noise control system limited warranty:

1. Failures which arise as a result of misuse, alteration, or non-performance of maintenance as specified in the Owner's Manual.
2. Replacing, removing, or modifying any portion of the NOISE CONTROL SYSTEM (consisting of the exhaust system and air intake/cleaner assembly) with parts not certified to be noise legal for street use.
3. Any motorcycle on which the odometer mileage has been changed so that the mileage cannot be determined.
4. TO THE FULLEST EXTENT ALLOWED BY LAW, NEITHER HARLEY-DAVIDSON NOR ITS AUTHORIZED DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, LOSS OF MOTORCYCLE USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

## **Recommendations for Required Maintenance**

It is recommended that any noise system maintenance be performed by an authorized Harley-Davidson<sup>®</sup> dealer using Genuine Harley-Davidson<sup>®</sup> replacement parts. The maintenance, replacement or repair of the noise control system may be performed by any other qualified service outlet or individual. Non-genuine parts may be used only if such parts are certified to comply with applicable U.S. Environmental Protection Agency standards.

## **Limited Motorcycle Warranty Australia/ New Zealand Only**

This Harley-Davidson Motorcycle Warranty, is provided by Harley-Davidson, Motor Company, P.O Box 653, Milwaukee, Wisconsin, 53201, U.S.A., Phone +1 (414) 343-4056, ("Harley-Davidson")

Harley-Davidson warrants for any new 2024 Harley-Davidson motorcycle that an authorized Harley-Davidson dealer will repair or replace without charge any parts found to be defective in factory materials or workmanship under normal use during the warranty period outlined above.

Such repair or replacement of parts will be Harley-Davidson's sole obligation and your sole remedy under this H-D Motorcycle Warranty, however you may have other rights under Australian and New Zealand laws, as described below.

**NOTE**

*Goods presented for repair may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair goods.*

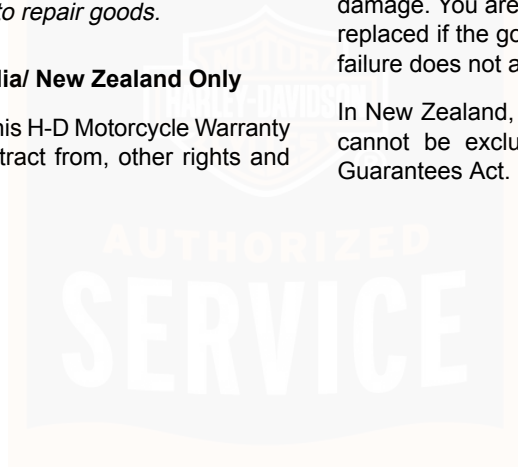
**Your Consumer Rights Australia/ New Zealand Only**

The benefits given to you under this H-D Motorcycle Warranty are additional to, and do not detract from, other rights and

remedies that you may have in respect of the motorcycle under Australian and New Zealand laws, including consumer protection laws.

In Australia, our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

In New Zealand, our goods also come with guarantees that cannot be excluded under the New Zealand Consumer Guarantees Act.



## NOTES

---



## SERVICE RECORDS

### Regular Service Intervals

Service must be performed at specified intervals to keep your Harley-Davidson motorcycle operating at peak performance. Refer to Service Intervals table.

Refer to Service Actions for service action definitions used in the service interval table.

### NOTE

- Whenever a vehicle is in for maintenance:
  - a. always check for and complete recalls and open product programs.
  - b. always verify that the latest calibration is installed.
- After completing the final service interval, repeat the service schedule starting at the 8000 km (5000 mi) interval.

### Service Intervals

Table 46. Regular Service Intervals: Harley-Davidson Sportster RH Models

COMPONENT	ACTION	1600 KM 1000 MI	8000 KM 5000 MI	16000 KM 10000 MI	24000 KM 15000 MI	32000 KM 20000 MI	40000 KM 25000 MI	48000 KM 30000 MI	56000 KM 35000 MI	64000 KM 40000 MI	72000 KM 45000 MI	80000 KM 50000 MI	NOTES
Service Intervals													
Electrical equipment and switches	Inspect	x	x	x	x	x	x	x	x	x	x	x	
Front tire pressure and tread	Check	x	x	x	x	x	x	x	x	x	x	x	1
Front brake fluid level	Inspect	x	x	x	x	x	x	x	x	x	x	x	5
DOT4 front brake fluid moisture content	Check	x	x	x	x	x	x	x	x	x	x	x	1, 2
Steering head bearings	Adjust	x		x		x		x		x		x	2
Steering head bearings	Lubricate						x					x	2
Clutch lever handlebar clamp screw torque	Tighten	x		x		x		x		x		x	1, 2, 4

**Table 46. Regular Service Intervals: Harley-Davidson Sportster RH Models**

COMPONENT	ACTION	1600 KM 1000 MI	8000 KM 5000 MI	16000 KM 10000 MI	24000 KM 15000 MI	32000 KM 20000 MI	40000 KM 25000 MI	48000 KM 30000 MI	56000 KM 35000 MI	64000 KM 40000 MI	72000 KM 45000 MI	80000 KM 50000 MI	NOTES
Master cylinder handlebar clamp screw torque	Tighten	x		x		x		x		x		x	1, 2, 4
Air cleaner filter	Inspect	x	x	x	x	x	x	x	x	x	x	x	3
Engine oil and filter	Replace	x	x	x	x	x	x	x	x	x	x	x	1, 3
Coolant	Check	x	x	x	x	x	x	x	x	x	x	x	7
Coolant	Replace	Replace coolant every 30000 mi (48000 km).											2
Radiators and oil cooler	Clean	x	x	x	x	x	x	x	x	x	x	x	
Brake system	Inspect	x	x	x	x	x	x	x	x	x	x	x	1, 2
Fuel lines and fittings	Inspect	x	x	x	x	x	x	x	x	x	x	x	1, 2
Rear brake fluid level	Inspect	x	x	x	x	x	x	x	x	x	x	x	5
DOT4 rear brake fluid moisture content	Check	x	x	x	x	x	x	x	x	x	x	x	1, 2
Brake systems	Replace	Flush brake systems and replace DOT 4 hydraulic brake fluid every two years or sooner if moisture content is 3 percent or greater.											2
Brake pads and discs	Inspect	x	x	x	x	x	x	x	x	x	x	x	
Jiffy stand	Lubricate	x	x	x	x	x	x	x	x	x	x	x	2, 3
Clutch system	Adjust	x	x	x	x	x	x	x	x	x	x	x	2, 3
Brake and clutch controls	Lubricate	x	x	x	x	x	x	x	x	x	x	x	2, 3, 6
Rear tire pressure and tread	Check	x	x	x	x	x	x	x	x	x	x	x	1
Drive belt and sprockets	Inspect	x	x	x	x	x	x	x	x	x	x	x	2, 3
Drive Belt	Adjust	x	x	x	x	x	x	x	x	x	x	x	2, 3
Exhaust system, fasteners and shields	Inspect	x	x	x	x	x	x	x	x	x	x	x	1, 3

## 218 Service Intervals and Records

**Table 46. Regular Service Intervals: Harley-Davidson Sportster RH Models**

COMPONENT	ACTION	1600 KM 1000 MI	8000 KM 5000 MI	16000 KM 10000 MI	24000 KM 15000 MI	32000 KM 20000 MI	40000 KM 25000 MI	48000 KM 30000 MI	56000 KM 35000 MI	64000 KM 40000 MI	72000 KM 45000 MI	80000 KM 50000 MI	NOTES
12 volt battery	Check	_____ Check battery, terminal torque and clean connections annually. Lubricate terminals with ELECTRICAL CONTACT LUBRICANT. _____											1
Spark plugs	Replace	_____ Replace spark plugs every two years or every 10,000 mi (16,000 km), whichever comes first. _____											2
Front forks	Rebuild	_____ Disassemble, inspect, rebuild front forks and replace fork oil every 50000 mi (80000 km). _____											2
Rear sprocket compensator	Inspect	_____ Inspect rear sprocket isolators for wear at each rear tire change. _____											2, 3
Component and system functions	Road Test	x	x	x	x	x	x	x	x	x	x	x	
<b>NOTES</b>													
1. Perform annually or at specified intervals, whichever comes first. 2. Should be performed by an authorized Harley-Davidson dealer, unless you have the proper tools, service data and are mechanically qualified. 3. Perform maintenance more frequently in severe riding conditions. This includes extreme temperatures, dusty environments, mountainous or rough roads, long storage conditions, short runs, heavy stop/go traffic or poor fuel quality. 4. For torque instructions, see Shop Practices in the service manual. 5. Brake fluid level drops as brake pads wear. 6. Use HARLEY LUBE. 7. Check coolant level, freeze point and inspect for leaks.													

## Service Actions

**Table 47. Service Action Definitions**

<b>ACTION</b>	<b>DEFINITION</b>
Inspect	Carefully examine component for excess wear, abnormality, contact, or leaks.
Check	Verify the component is within the owner's manual or service manual service limits. Adjust or repair as necessary.
Lubricate	Lubricate the component as specified in the owner's or service manual with Harley-Davidson approved product.

**Table 47. Service Action Definitions**

<b>ACTION</b>	<b>DEFINITION</b>
Replace	Replace the component at the specified intervals.
Clean	Clean the component as specified in the owner's or service manual.
Rebuild	Rebuild the component according to the procedures in the service manual.

## Maintenance Records

Maintain a record of this service to keep your new motorcycle limited warranty in force. Refer to Table 48.

**Table 48. Owner's Maintenance Records**

<b>SERVICE MILE INTERVAL</b>	<b>DATE</b>	<b>DEALER NUMBER</b>	<b>TECHNICIAN NAME</b>	<b>TECHNICIAN SIGNATURE</b>
1,000 mi (1,600 km)				
5,000 mi (8,000 km)				
10,000 mi (16,000 km)				
15,000 mi (24,000 km)				
20,000 mi (32,000 km)				
25,000 mi (40,000 km)				
30,000 mi (48,000 km)				
35,000 mi (56,000 km)				
40,000 mi (64,000 km)				
45,000 mi (72,000 km)				
50,000 mi (80,000 km)				



## GENERAL

For additional certification information related to your motorcycle, look up your Vehicle Identification Number (VIN) on <https://serviceinfo.harley-davidson.com>.

## ACRONYMS AND ABBREVIATIONS

**Table 49. Acronyms and Measurement Symbols**

ITEM	DEFINITION
A	Amperes
ABS	Anti-lock braking system
AC	Alternating current
ACR	Automatic compression release
AGM	Absorbed glass mat (battery)
Ah	Ampere-hour
BCM	Body control module
°C	Celsius (Centigrade)
CCA	Cold cranking amps
CI	Cubic inch
cm	Centimeters
cm <sup>3</sup>	Cubic centimeters (cc)
CVO	Custom vehicle operations
DC	Direct current
DLC	Data link connector
DOM	Domestic
DT II	Digital Technician II
DTC	Diagnostic trouble code

**Table 49. Acronyms and Measurement Symbols**

ITEM	DEFINITION
ECM	Electronic control module
EFI	Electronic fuel injection
EHCUC	Electro hydraulic control unit
EITMS	Engine idle temperature management system
EHCUC	Electro hydraulic control unit
ETC	Electronic throttle control
EV	Electric vehicle
EVAP	Evaporative emissions control system
EVPT	Electric vehicle powertrain
EVSE	Electric vehicle supply equipment
°F	Fahrenheit
fl oz	Fluid ounce
ft	Feet
ft-lbs	Foot pounds
FTP	Flash to pass
g	Gram
gal	Gallon
GAWR	Gross axle weight rating
GND	Ground (electrical)
GPS	Global positioning system
GVWR	Gross vehicle weight rating
H-DSSS	Harley-Davidson smart security system
HCU	Hydraulic control unit
HDI	Harley-Davidson International

**Table 49. Acronyms and Measurement Symbols**

ITEM	DEFINITION
HP	Horsepower
HV	High voltage
Hz	Hertz
IGN	Ignition light/key switch position
IM	Instrument module
IMU	Inertia measurement unit
in	inch
in <sup>3</sup>	Cubic inch
<b>in-lbs</b>	Inch pounds
kg	Kilogram
km	Kilometer
km/h	Kilometers per hour
kPa	Kilopascal
kW	Kilowatt
L	Liter
lb	Pounds
LED	Light emitting diode
Li-ion	Lithium-Ion
LV	Low voltage
mA	Milliampere
mi	Mile
MIL	Malfunction indicator lamp
Min	Minimum
mL	Milliliter
mm	Millimeter

**Table 49. Acronyms and Measurement Symbols**

ITEM	DEFINITION
mph	Miles per hour
ms	Millisecond
Nm	Newton-meter
OBC	Onboard charger
oz	Ounce
P&A	Parts and Accessories
PA	Public address
Part No.	Part number
PIN	Personal identification number
PPE	Personal protective equipment
psi	Pounds per square inch
PTT	Push to talk
qt	Quart
RDRS	Reflex defensive rider systems
RESS	Rechargeable energy storage system
rpm	Revolutions per minute
SDS	Safety data sheet
SoC	State of charge
SoH	State of health
SW	Software
TCS	Traction control system
TCU	Telematic Control Unit
TPMS	Tire pressure monitoring system
USB	Universal serial bus
USB-C	Universal serial bus - type C

**Table 49. Acronyms and Measurement Symbols**

ITEM	DEFINITION
V	Volt
VAC	Volts of alternating current
VDC	Volts of direct current
VHC	Vehicle hold control
VIN	Vehicle identification number
VR	Voice recognition
W	Watt
WSS	Wheel speed sensor
Wh	Watt-hour
WHIM	Wireless Headset Interface Module

## H-D U.S.A., LLC TRADEMARK INFORMATION

Bar & Shield, Boom!, Breakout, Cruise Drive, CVO, Digital Tech, Digital Technician, Digital Technician II, Electra Glide, Evolution, Fat Bob, Fat Boy, Forty-Eight, FXDR 114, Glaze, Gloss, H-D, H-Dnet.com, Harley, Harley-Davidson, HD, Heritage Softail, Iron 1200, Iron 883, Low Rider, Milwaukee-Eight, Night Rod, Pan America, Profile, Reflex, Revolution X, Road Glide, Road King, Road Tech, Roadster, Screamin' Eagle, Seventy-Two, Slim, Softail, Sport Glide, Sportster, Street Bob, Street Glide, Street Rod, Sun Ray, Sunwash, SuperLow, Supersmart, SYN3, TechLink, TechLink II, TechLink 3, Tour-Pak, Tri Glide, Twin-Cooled, Ultra Classic,

and Harley-Davidson Genuine Motor Parts and Genuine Motor Accessories are among the trademarks of H-D U.S.A., LLC.

## PRODUCT REGISTERED MARKS

Android, Apple, Alcantara S.p.A., Allen, Amp Multilock, Bluetooth, Brembo, CarPlay, City Navigator, Delphi, Deutsch, Dunlop, Dynojet, Fluke, G.E. Versilube, Garmin, Gunk, Heli-Coil, Hydroseal, Hylomar, iPhone, iPod, Kevlar, Lexan, Loctite, Lubriplate, Keps, K&N, Magnaflux, Marson Thread-Setter Tool Kit, MAXI fuse, Molex, Michelin, MPZ, Multilock, nano, NGK, Novus, Packard, Pirelli, Permatex, Philips, Pozidriv, Road Tech, Robinair, S100, Sems, Siri, SiriusXM, Snap-on, Teflon, Threadlocker, Torca, Torco, TORX, Tufoil, Tyco, Ultratorch, Velcro, X-Acto and XM Satellite Radio are among the trademarks of their respective owners.

## PATENTS

Harley-Davidson products are covered by one or more United States and international patents or pending patent applications.

## COPYRIGHT

ALL RIGHTS RESERVED.

©2023 H-D.

## NOTES

---



# Index

## A

Accessories and Cargo Guidelines.....	3
Acronyms and Abbreviations.....	221
Adjust.....	50, 178
Adjusting Front Shock Absorbers.....	61
Adjusting Rear Shock Absorbers.....	52
Adjusting Steering Head Bearings.....	160
Adjustments, Suspension.....	51
AGM Battery.....	166
Air Filter, Inspecting.....	160
Alarm.....	72
Anti-lock Brake System (ABS) Identification.....	44

## B

Battery.....	74, 166, 169
Before You Ride.....	37
Brake.....	78
Brake Fluid Level , Checking.....	148
Brake Fluid, Changing.....	148
Brake Pads and Discs, Inspecting.....	147
Brakes.....	192
Break-in.....	38, 139
Break-in Maintenance.....	139

Bulb.....	178
Bulb, Replacement LED Tail Lamp.....	183
Bulb, Replacement LED Turn Signal.....	183

## C

Catalytic Converter.....	41
Changing Engine Oil.....	144
Charging.....	166
Charging Battery.....	166
Checking Brake Fluid Level and Changing Brake Fluid....	148
Checking Clutch and Brake Controls.....	152
Checking Engine Oil.....	142
Checking Systems for Leaks or Abrasions.....	148
Checklist.....	37
Chin Spoiler.....	175
Chin Spoiler Remove and Install.....	175
Clean.....	129, 130, 135, 137, 166
Cleaning.....	130, 135
Clutch.....	156
Clutch and Brake Controls, Checking.....	152
Controls.....	24, 78
Coolant.....	31, 157, 191
Coolant, Replace.....	159
Cooling System.....	191

# Index

Copyright.....	223
Cover.....	173
Customer service.....	1

## D

Disposal and Recycling.....	140
Drive Belt.....	152
Drive Belt Deflection Specifications.....	152

## E

EITMS.....	116
Electrical System.....	191
Engine.....	38, 118, 189
Engine Idle Temperature Management System.....	116
Engine OFF/RUN Switch.....	100
Engine Oil.....	141, 142, 144
Engine Oil and Filter.....	144

## F

Fill.....	39
-----------	----

Finding an Authorized Dealer.....	193
Fob.....	65
Fork Maintenance.....	139
Front Fork, Maintaining.....	159
Fuel.....	39, 41
Fuel Cap Lock, Lubricating.....	164
Fuses.....	74, 184
Fuses and Relays.....	74

## G

Gasoline.....	41
Gear Shift.....	78
Genuine Motor Parts and Accessories.....	129

## H

Hand Control Modules.....	94, 100
Hazard Warning 4-Way Flashers.....	70
Headlight.....	178
Heated Gear.....	113

# Index

## I

Importing a Motorcycle.....	194
Indicators.....	85
Infotainment.....	105
Infotainment System.....	105
Inspect.....	166
Inspecting Air Filter.....	160
Inspecting Brake Pads and Discs.....	147
Inspection.....	166
Instruments.....	81

## J

Jiffy Stand.....	50
------------------	----

## K

Key.....	65
Kick Stand.....	50

## L

Labels.....	17
-------------	----

Leaks or Abrasions, Checking Systems for.....	148
Leather.....	137
Leather Care.....	137
Low Beam Switch.....	94
Lubricating Fuel Cap Lock.....	164
Lubrication, Miscellaneous.....	152

## M

Maintaining Front Fork.....	159
Maintenance.....	139, 141, 142, 144, 152, 156, 160, 160, 217
Maintenance, Preparing the Motorcycle for.....	139
Maintenance.....	193
Manual.....	1
Mirror Adjustment.....	50
Mirrors.....	50
Miscellaneous Lubrication.....	152
Models and Features.....	24

## N

National Highway Traffic Safety Administration.....	193
National Highway Traffic Safety Administration (NHTSA).....	193
Noise Control System.....	13

# Index

<b>O</b>	Rider Safety Enhancements.....	121
Oil.....	Rules of the Road.....	12
Oil Cooler.....		
Oil Level.....		
Operation.....		50, 115, 116, 118
Owner Contact Information.....		195
<b>P</b>	<b>S</b>	
Patents.....	Safe Operating Rules.....	3
Polishing.....	Safety.....	3, 17, 166
Power Disconnect.....	Safety Concerns Canada.....	194
Pre-Ride Checklist.....	Safety Symbols, Definitions.....	13
Preparing the Motorcycle for Maintenance.....	Seat.....	183
Primary Chaincase.....	Security System.....	65, 65, 68, 70, 72, 73, 73, 74, 74, 75
<b>R</b>	Service Records.....	217
Radiator, Clean.....	Shifting Gears.....	124
Recommended Cleaning Products.....	Shock Absorbers.....	160
Registered Marks.....	Side cover.....	173
Ride Modes.....	Side Covers.....	173
	Smart Security System.....	74, 74, 75
	Spark Plug Replacement.....	160
	Spark Plugs.....	160
	Specifications.....	31, 141, 152
	Start Switch.....	100
	Starting the Engine.....	116
	Steering Head Bearings, Adjusting.....	160



# Index

Stopping the Engine.....	118
Storage.....	37
Storing.....	37, 166
Storing.....	138
Suspension Adjustment.....	51
Switch.....	78, 94, 100

## T

Tail Lamp Bulb Replacement LED.....	183
Throttle.....	78
Tire.....	129
Tires.....	129
Tires, Checking Pressure and Inspecting.....	44
Traction Control.....	123
Traction Control (TC) Description.....	123
Trademarks.....	223
Transmission.....	31, 191
Transport Mode.....	73
Troubleshooting.....	75, 189, 191, 191, 192
Turn Signal Bulb Replacement LED.....	183

## U

USB Port.....	113
---------------	-----

## V

Vehicle Identification Number (VIN).....	21
Vehicle Storage.....	37
Vinyl.....	137
Vinyl Care.....	137
Voltage test.....	166

## W

Warranty.....	195
Washing.....	135
Wheels.....	129

## NOTES

---

